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## THE LEAF BEETLES OF NORTH CENTRAL MEXICO COLLECTED ON THE DAVID ROCKEFELLER MEXICAN EXPEDITION (COLEOPTERA, CHRYSOMELIDAE)

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This paper is based largely on material collected on the David Rockefeller Mexican Expedition of the American Museum of Natural History (Spieth, 1950). In a few cases species that were not taken on the expedition but that have some significant relation to the region covered have been included. The area covered by the expedition was the northern part of the Mexican plateau in the states of Chihuahua, Durango, Zacatecas, and Coahuila. All of the species of Chrysomelidae collected are reported upon in this paper, with the exception of those of the genus *Diabrotica*. The species of this genus from Mexico and the Central American countries are being studied by Dr. Ray Smith.

Since the Chrysomelidae are phytophagous beetles, with most of them feeding on the foliage of living plants, and usually on one species or closely related species, they are therefore directly dependent upon the distribution of these plants. Changing conditions throughout northern Mexico due to cultivation, grazing, and other factors have resulted in a change in the plant species. In some areas the native plants have been killed out, resulting in the disappearance of the beetles associated with these plants. A very few species of beetles were adaptable enough to transfer to other plants, usually closely related species. On the other hand, in some localities, many forms of plant life have been introduced, in some cases bringing in their associated leaf-feeders. Also of the

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many beetles carried into regions there are always some that are able to find some plant upon which they can live and establish themselves. Because of all of these factors, the distribution of many of the Chrysomelidae constantly changes, and as years go on, with increasing human development of the land, more marked changes will take place among the beetles. Many species unable to cope with conditions will become extinct, while others adapting themselves to these conditions or finding them particularly favorable will become abundant. Some of these may increase to such numbers as to become troublesome to man's economic interests.

Virtually no data have been recorded as to the plant associations of the various species of chrysomelid beetles in this region of northern Mexico. For the most constructive results, plant material should, wherever possible, be collected with the various species of insects for future identification. This would require an immense amount of time in actual observation, to make sure with which plant the beetle species was actually associated. Since a number of plant species grow close together, to see a chrysomelid beetle on a particular leaf is not enough, for they love to sun themselves in any convenient spot. They must be observed actually feeding upon the plant. Our methods of collecting chrysomelids by sifting, sweeping, and beating, which yield the greatest numbers of species, do not yield conclusive host data. In fact, a better knowledge of the host relationship might aid in a better understanding of the phylogenetic relations.

All 16 generally recognized subfamilies of the Chrysomelidae of the world have recorded representatives in the northern part of Mexico. Specimens representing all but six of these subfamilies were taken on the expedition. Keys and short descriptions for all subfamilies will be found throughout the paper under their respective headings.

No accurate idea of the number of species of Chrysomelidae for this northern region of Mexico can be arrived at with our present knowledge. For the whole of Mexico and Central America, Jacoby (1880-1892) lists 2166 species for all the subfamilies of Chrysomelidae except the Hispinae and Cassidinae. Baly (1885-1894) and Champion (1885-1894) for these two subfamilies list 453 species, making a total of 2619. Blackwelder (1945) considerably augments this number but gives no exact figures.

Of the approximately 1300 chrysomelid beetles listed for North

America, north of Mexico, nearly one-half cross the border or range so close to the border that many of them might well be eventually discovered in Mexico. Certainly this expedition has collected many species heretofore recorded only north of the border. With the species that might be endemic to this region and those that push in from the north, I roughly place the leaf-beetle population at about 700 species in this northern section of Mexico.

One hundred and six species of chrysomelids exclusive of the diabroticas were taken on the expedition. Seven are described as new species, and one is a new subspecies. Thirty-five of these are from Mexico, never having been taken north of the border, 45 are known from both sides, and 18 have been known from north of the border but are now for the first time recorded from Mexico. It will be seen from the above figures that this northern part of Mexico definitely ties in with the southwestern part of the United States, for more than one-half, or 63, of the species discussed in this paper are common to both regions. However, the tropical influence is strong as is shown by the 35 species, and the new species described, which either push up from the south or are typical of the Mexican Highland Plateau.

Distributional maps are given for 16 species. The letters on the maps correspond to the names of the localities given in the text. The recorded distribution is shown by solid circles; new records, whether from the 1947 expedition or of other specimens in the collections of the American Museum of Natural History, are indicated by crosses. Uncertain localities or data have not been included. The arrows indicate the recorded spread of the species into the neighboring regions of Arizona, New Mexico, Texas, or Guatemala.

One other map (fig. 13) shows the distribution of three species: *Zygogramma tortuosa*, previously recorded from southern United States, and *Z. bicolorata* and *Z. tricolorata*, two new species described in the text. The distribution of these three closely related species will be interpreted by the symbols on the map.

I wish to thank Dr. Mont A. Cazier for the time taken to read this manuscript and for his helpful suggestions for its improvement; also to Miss Alice Gray for her assistance in making the maps. Special thanks go to Dr. David Rockefeller, not only for making the 1947 Mexican Expedition possible, but especially for his continued support which made possible the preparation of this paper.

## CLASSIFICATION

Some authors, particularly those on the Continent, have broken up the old-established family Chrysomelidae by raising some of the subfamilies to family status and by grouping the others to form new families. The argument supporting this action is largely based on suggestions advanced by Böving and Craighead. In the adult beetles, however, other factors must be taken into consideration. In some cases the subfamilies have characters which sharply delineate them into homogeneous natural groups, but in my opinion these differentiating characters are not of family rank. In some of the other subfamilies, the characters are not sufficiently distinct; in fact they are vaguely described with a limiting "more or less" or "usually." Such terms are hardly sufficient to define a natural group of even subfamily rank.

In the old family Chrysomelidae we find a fairly homogeneous group based on the distinctly bilobed third tarsal joint (except for the nearly entire third joint in the subfamily Chrysomelinae); supplemented by antennae of short to medium length placed on the front of the head and not surrounded by the eyes, the generally rounded or depressed form, and the leaf-feeding habits of the larvae and adults—good family characters that separate them as a unit from the two closely related families Cerambycidae, the longhorns, and Bruchidae (Mylabridae), the pea and bean weevils, of the superfamily Phytophagoidea.

The following key applies to the 16 generally recognized subfamilies of the Chrysomelidae. A seventeenth group, the Sphaerocarini, recognized as a subfamily by some authors, I have not included in the key, for, with Blackwelder and others, I consider that it does not rate subfamily rank, and I retain it as a tribe under the Lamprosominae.

Of the 16 subfamilies, representatives of all but six were obtained on the expedition. A short résumé of all 16 subfamilies is, however, given in their respective places throughout the paper.

## KEY TO THE SUBFAMILIES OF THE CHRYSOMELIDAE

1. Front of head normal, mouth anterior.....2  
Front of head inflexed, mouth inferior.....15
2. Intermediate abdominal sternites narrowed medially; pygidium present,  
declivous.....3  
Intermediate abdominal sternites not narrowed medially, pygidium not  
exposed.....7
3. Pronotum with antennal grooves.....Chlamisinae



- Pronotum without antennal grooves.....4
4. Antennae dentate or pectinate from beyond the third or fourth segment...5
- Antennae filiform or at most clavate.....6
5. Head more or less constricted behind the eyes, eyes usually large, deeply emarginate.....Megalopodinae
- Head usually not constricted, set more deeply in the thorax; eyes usually not large, or deeply emarginate.....Clytrinae
6. Pronotum narrower than the elytra.....Megascelinae
- Pronotum as wide or nearly as wide as elytra.....Cryptcephalinae
7. Pronotum narrower than elytra, without lateral margin.....8
- Pronotum as wide or nearly as wide as elytra, with a lateral margin.....11
8. Antennae nearly approximate; first abdominal segment as long as all the others together.....Donaciinae
- Antennae separated by the entire width of the front; first abdominal segment no longer than second and third together.....9
9. Ligula small, chitinated, entire, prosternum very narrow.....Criocerinae
- Ligula well developed, membranous, or if chitinated it is cleft, prosternum prominent or distinct.....10
10. Anterior angles of pronotum prominent, sometimes knobbed.....Sagrinae
- Anterior angles of pronotum not prominent, effaced.....Orsodacninae
11. Pronotum with grooves to receive the antennae.....Lamprosominae
- Pronotum without grooves.....12
12. Antennae separated by the entire width of the front.....13
- Antennae nearly approximate at base.....14
13. Third tarsal segment bilobed; anterior coxal cavities rounded.....Eumolpinae
- Third tarsal segment not distinctly bilobed, entire; anterior coxal cavities transversely oval.....Chrysomelinae
14. Hind thighs slender, adapted for walking.....Galerucinae
- Hind thighs more or less thickened, adapted for leaping.....Halticinae
15. Head free; pronotum and elytra without broad expanded margins.....Hispiniae
- Head concealed; pronotum and elytra with more or less broad expanded margins.....Cassidinae

#### SUBFAMILY SAGRINAE

This, the first subfamily of the Chrysomelidae, is a rather heterogeneous group. Together with the next four subfamilies it is characterized by the fact that the head is constricted behind the eyes and produced anteriorly as in the Cerambycidae, and it makes up the Eupoda in some classifications. The antennae, although more or less filiform, are never as long as in most of the cerambycids.

The Sagrinae have the antennae separated; the thorax is not so broad as the elytra at the base, without lateral margins and often has a transverse sulcus; elytra long, covering the pygidium. The

legs are generally somewhat robust, while in some genera the posterior femora are very strongly incrassate and together with the enlarged tibiae may be armed with tubercles or teeth.

It is a small group, with about 100 species, mostly from the Eastern Hemisphere. Only two genera are represented in the Western Hemisphere, and only one of these, *Aulacoscelis*, from the area covered by the expedition. Twelve species of *Aulacoscelis* are known, all from Mexico. Three of these have been recorded from the extreme southwestern United States, and one extends as far south as Panama. None were taken on the expedition.

#### SUBFAMILY DONACIINAE

The Donaciinae resemble the Cerambycidae with their long slender antennae. These are inserted in front of the eyes, rather close together; the eyes are round and entire; thorax without lateral margins, not so wide as elytra at base; elytra long, covering the pygidium, with 10 rows of regular punctures; front coxae close together, posterior widely separated; first abdominal segment as long as all the others together, under side densely covered with a silvery pubescence. Upper side more or less metallic.

This is not a large subfamily, numbering only about 200 species. Many of the species are quite variable, and consequently many subspecies have been established. They are more generally found throughout the north temperate regions; none have been taken in South America. Two genera, represented by three species and three subspecies, have been recorded from the region covered by the expedition, but none were taken on that trip.

#### SUBFAMILY ORSODACNINAE

A very small subfamily of about 30 species, with round eyes, generally entire; antennae long, slender, and widely separated; thorax narrowed at base, much narrower than elytra, lateral margins indistinct; elytra elongate, covering the abdomen.

Three genera are known from the Western Hemisphere, all of which are represented in North America. Only one species, *Orsodacne atra* Ahrens, with its subspecies *O. a. childreni* Kirby, occurs in the region covered by the expedition. None were taken by the expedition.

## SUBFAMILY CRIOCERINAE

The Criocerinae are characterized by the nearly filiform, widely separated antennae; eyes more or less emarginate; thorax cylindrical, constricted at sides and transversely grooved near base, narrower than elytra at base; elytra covering abdomen, punctate-striate; first segment of abdomen a little longer than each of the following ones; legs robust, femora sometimes with a tooth and frequently strongly thickened in the male.

This is a moderately large, rather homogeneous subfamily containing about 1000 species in about a dozen genera. About 750 of these belong to one genus, *Lema*. Another 150 belong to the genus *Crioceris*. Representatives of the subfamily are found in almost every country of the globe.

Three genera, *Liliocerus*, *Crioceris*, and *Lema*, represented by about 150 species, have been recorded from the Central American countries. Six species of *Lema* were taken on the expedition but none of *Liliocerus* or *Crioceris*.

*Lema trilineata* Olivier

*Lema trilineata* OLIVIER, 1808, Entomologie, vol. 6, p. 739, pl. 2, fig. 20.

This is a common and very widely distributed species ranging from the New England states west to the Dakotas and south to Florida, Arizona, and Mexico, as well as Cuba. In a species so widely distributed there are certain to be many forms or races. I am not following Schaeffer (1933, p. 302) in recognizing Say's *trivittata* as a subspecies of *trilineata* Olivier, although it is almost distinctive enough to be so regarded. Its geographical distribution gives it a stronger claim to subspeciation than its structural characters, for this is the form that ranges generally throughout the western and southwestern United States, Mexico, British Honduras, Honduras, and south into Costa Rica.

The larvae and adults are found on the foliage of various species of solanaceous plants, especially that of the potato. It is sometimes called the Old-fashioned Potato Beetle, but that name is commonly applied to a species of *Epicauta*. A much better name and one that is in more general use is Three-lined Potato Beetle.

TYPE LOCALITY: Not given.

RECORDED MEXICAN DISTRIBUTION: *Coahuila*: San Pedro, *Veracruz*: Toxpan; Jalapa.

Also British Honduras: Rio Sarstoon. Honduras. Costa Rica.

NEW RECORDS FOR MEXICO: *Chihuahua*: Sixteen miles south-east of Chihuahua, July 11, 1947, four. *Distrito Federal*: San Jeronimo, July 1, 1946 (J. and D. Pallister), one. *Veracruz*: Córdoba, May 11, 1946 (J. and D. Pallister), one; Jalapa, May 19, 1946 (J. and D. Pallister), one.

***Lema nigrovittata* Guérin-Ménéville**

Figure 1

*Lema nigrovittata* GUÉRIN-MÉNEVILLE, 1829, Iconographie du règne animal, insectes, pt. 7, p. 262.

Very similar to *Lema trilineata* and frequently confused with it in collections. It is easily separated by the lateral or submarginal black vittae which are more distant from the margin of the elytra. In some specimens this stripe is interrupted at the middle and may even be limited to a short black dash at the humeral carina. This beetle is also generally smaller and less robust than *trilineata*. It

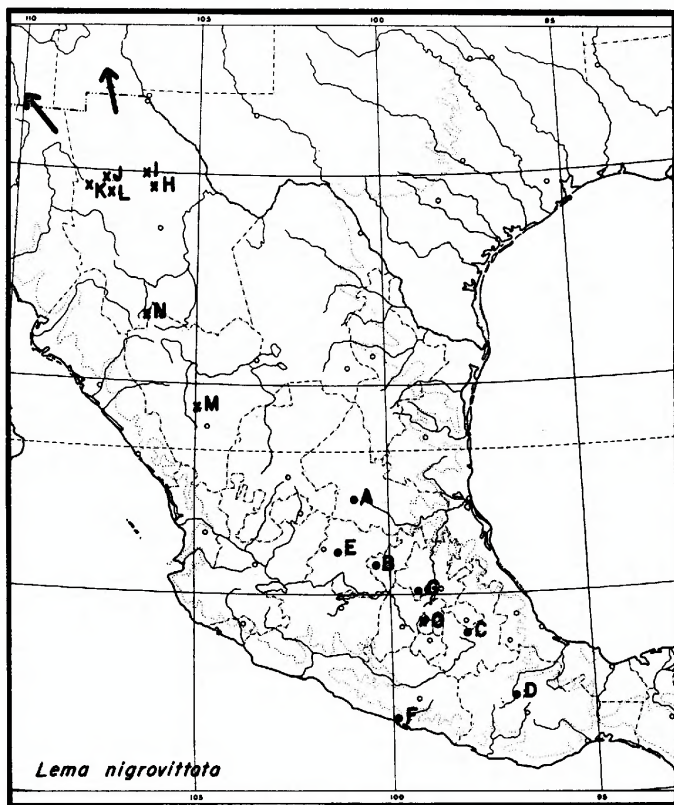


FIG. 1. Distribution of *Lema nigrovittata* Guérin-Ménéville.



is a rather common species throughout its range from southwestern United States into southern Mexico. As far as known it has not been taken south of the Isthmus of Tehuantepec. The larvae and adults are found on the foliage of *Datura* plants, upon which they feed, and are sometimes referred to as the Striped *Datura* Beetle.

TYPE LOCALITY: Not given.

RECORDED MEXICAN DISTRIBUTION: *San Luis Potosí*: Hacienda de Bleados (not located); *San Luis Potosí* (A). *Querétaro*: Querétaro (B). *Puebla*: Puebla (C). *Oaxaca*: Etla (D). *Guanajuato*: Guanajuato (E). *Guerrero*: Acapulco (F). *Hidalgo*: Tula (G). Zacualtipan (not located). Parra (not located).

NEW RECORDS FOR MEXICO: *Chihuahua*: Oja Laguna (H), June 30, 1947, one; Cañon Prieto near Primavera (I), July 2, 1947, 6500–6800 feet, one; San José Babicora (J), July 5, 1947 three; Madera (K), July 6, 1947, 7200 feet, one; Matachic (L), July 7, 1947, one. *Durango*: San Juan del Rio (M), July 30, 1947, 5200 feet, one. *Chihuahua*: Santa Barbara (N), August 17, 1947, 6200 feet (G. M. Bradt), one. *Distrito Federal*: San Jeronimo (O), June 11, 1946 (J. and D. Pallister), two; San Jeronimo (O), June 21, 1946 (J. and D. Pallister), two; San Jeronimo (O), July 1, 1946 (J. and D. Pallister), one; San Angel (O), July 10, 1946 (J. and D. Pallister), four.

### ***Lema concolor* LeConte**

*Lema concolor* LECONTE, 1884, Trans. Amer. Ent. Soc., vol. 12, p. 24.

This small but very attractive *Lema* seems to be generally rare in collections. Prior to the expedition there was but one specimen in the collection of the American Museum of Natural History, from the Huachuca Mountains, Arizona (Palm Collection). One specimen was taken on the expedition, which broadens the known range far to the south. It has been recorded as feeding on ferns in rather high altitudes.

TYPE LOCALITY: Las Vegas, New Mexico.

RECORDED MEXICAN DISTRIBUTION: No authentic Mexican records.

NEW RECORDS FOR MEXICO: *Chihuahua*: Madera, July 6, 1947, 7200 feet, one.

### ***Lema confusa trabeata* Lacordaire**

*Lema confusa trabeata* LACORDAIRE, 1845, Mém. Soc. Roy. Sci. Liège, vol. 3, p. 409.

This widely distributed form of *confusa* Chevrolat is the one most commonly seen in collections. It ranges from southern Florida probably along the Gulf Coast, through Texas, where specimens have been collected, into the central highlands of Mexico, and extends down through Guatemala into Panama. The form *omogera* Horn, sometimes regarded as a distinct species, differs from *trabeata* in the lack of the lateral yellow vitta along the margin of the elytra, and the apical fascia. This form is restricted to Baja California.

TYPE LOCALITY: Not given.

RECORDED MEXICAN DISTRIBUTION: *Chihuahua*: Pinos Altos. *Durango*: Ventanas; Presidio. *Michoacan*: Tacambaro. *Veracruz*: Cordova; Tuxtla; Cerro de Plumas; Jalapa; Orizaba. Yucatan.

Also Guatemala: Los Mercedes, Zapote, San Geronimo, Teleman. Panama: Bugaba, Chiriqui.

NEW RECORDS FOR MEXICO: *Chihuahua*: Catarinas, July 26, 1947, 5800 feet, six; Matachic, July 7, 1947, one. *Durango*: Pedricena, August 19, 1947, 4500 feet, one. *Sinaloa*: Mazatlan. *Morelos*: Guernavaca (Tower Collection), six. *Morelos*: Cuautla, July 13, 1946 (J. and D. Pallister), two. *Guerrero*: Xalitla, June 4, 1946 (J. and D. Pallister), 12.

### *Lema cingulata* Clark

*Lema cingulata* CLARK, 1866, Catalogue of Phytophaga, Appendix, p. 41.

One specimen of this rare species was taken on the expedition. Its comparatively large size, with black head and thorax and steel blue elytra with an orange fascia just before the middle but not reaching the suture or margin, makes this a conspicuous and attractive insect. It is closely allied on the south with the Colombia species *Lema circulus* Lacordaire (1845, Mém. Soc. Roy. Sci. Liège, vol. 3, p. 399) which lacks the apical orange fascia and the entirely black legs and antennae. To the north and west *cingulata* is allied to the species *Lema peninsulae* Crotch (1873, p. 24) of Baja California and the southwestern United States but can be recognized by the presence of the orange fascia.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Mazatlan*.

NEW RECORDS FOR MEXICO: *Durango*: Nombre de Dios, August 13, 1947, 5900 feet, one.

### ***Lema peninsulae* Crotch**

*Lema peninsulae* CROTCH, 1873, Proc. Acad. Nat. Sci. Philadelphia, vol. 25, p. 24.

With some hesitation I assign a single specimen collected by the expedition to this species. I have had no opportunity to examine Crotch's type, but, compared with his description and with named specimens, it differs only in its slightly larger size. Our single specimen was collected at the same time and locality as the single specimen of *Lema cingulata* Clark. It compares with this specimen in every detail except for the lack of the orange fascia across the elytra. Under certain lights, however, a faint bronze iridescence marks the position where this fascia would normally be. When more material is available for study, it may be found that *peninsulae* is the same as *cingulata* or at most a subspecies separated largely on color. Assigning this specimen to *peninsulae* Crotch broadens the range of this species far to the south and joins it to that of *cingulata*.

TYPE LOCALITY: "Lower California" (LeConte).

RECORDED MEXICAN DISTRIBUTION: *Baja California*.

NEW RECORDS FOR MEXICO: *Durango*: Nombre de Dios, August 13, 1947, 5900 feet, one.

### **SUBFAMILY MEGASCELINAE**

Members of this small and attractive subfamily are easily recognized by their bright metallic green, blue, or yellow coloring, and their rather long cylindrical bodies. The head is not constricted behind; antennae are long and slender and widely separated; thorax is cylindrical, rather elongate, much narrower than elytra at base; elytra are long but not covering the pygidium, usually rugosely punctate, striate, and slightly pubescent. First abdominal segment longer than any of the following segments.

The subfamily is confined to the tropical regions of Central and South America, where it is represented by about 120 species, in two genera. Nearly 20 of these have been taken in the Central American countries, and only one, *Megascelis texana* Linell, has been recorded from north of the Mexican border in Texas. None were taken on the expedition.

### **SUBFAMILY MEGALOPODINAE**

The members of this subfamily are frequently confused with

other groups, but particularly with the next subfamily, the Clytrinae. There are no sharp distinctions to separate the two. The Megalopodinae have the body more or less elongate, sometimes flattened above; head usually but not always constricted behind the eyes, eyes usually large, elongate but sometimes small, deeply emarginate, antennae short, terminal joints usually from fourth outward transversely widened, or dentate, inserted in front of the eyes; thorax variable, transverse, narrowed anteriorly or subcylindrical, sides straight, or transversely sulcate, anteriorly and posteriorly; occasionally tuberculiform; elytra variable, broad, narrowed posteriorly, or narrow and parallel; pygidium usually visible, last abdominal segment longest; legs robust, the posterior femora strongly incrassate in the male and often armed with stout teeth, tibiae curved and pubescent.

The Megalopodinae are confined to the tropical areas of the world. About 300 species are known. Central and South America are especially rich in species, with the three largest genera, *Mastostethus* (about 135 species), *Agathomerus*, and *Megalopus* (about 40 species each) restricted to these regions. Only about 30 species extend north into Mexico, and none have been recorded from the United States. None were taken on the expedition.

This subfamily and the next three subfamilies make up the group Camptostomes.

#### SUBFAMILY CLYTRINAE

The Clytrinae are quite variable in appearance. Some are stout, others are subcylindrical, but most of them are compact and of medium size. Head seldom constricted behind the eyes, usually inserted well into the thorax, eyes usually small, not deeply emarginate, antennae short, widely separated, serrate from beyond the fourth segment; thorax narrowly margined on the sides, fitted closely to the elytra; elytra lobed on sides, not covering the pygidium; front coxae transverse, legs usually short, stout. In the males of some, the front tibiae are longer than in the female.

From what information we have, most of the larvae construct a case composed at least partially of excrement. They resemble scarabaeid larvae in that the terminal segments are frequently enlarged. Many live in ant nests, feeding upon vegetable debris.

The Clytrinae are a medium-sized subfamily, numbering about 1000 species, more numerous in the tropics. South America is particularly rich in species, and Mexico and the Central American



countries have nearly 90, distributed in 12 genera. North America north of Mexico has about 35 species in eight genera. Twelve species of this subfamily were taken on the expedition.

### ***Antipus laticlavus* (Forster)**

Figure 2

*Chrysomela laticlavus* FORSTER, 1771, *Novae species insectorum*, p. 27.

An extremely widely distributed species ranging from the New England states west across central Ohio, Illinois, to Colorado, and south to Florida, Central America, and into Colombia. It is highly variable in color, the black frequently almost replacing the orange, except for a small area at the base and a much smaller spot near the apex of the elytra. These numerous color forms have led to descriptions under various names, but there seems no justification in recognizing any of these. The beetles are reported as feeding on ragweed, but they also frequent the flowers of many other plants and shrubs.

TYPE LOCALITY: "In America Septentrionali."

RECORDED MEXICAN DISTRIBUTION: Jacoby in the "Biologia Centrali-Americana" apparently overlooked Forster's description and name of this very common insect, but placed all the Mexican specimens under Lacordaire's name of *mutabilis*, a form described as having the black area of the elytra greatly developed. I therefore give the recorded distribution of *mutabilis*. *Sinaloa*: La Noria (A). *Durango*: Ventanas (B). *Guerrero*: Acapulco (C); Iguala (D); Chilpancingo (E). *Oaxaca*: Oaxaca (F); Juquila (G). *Veracruz*: Cordova (H); Atoyac (I). *Morelos*: Cuernavaca (J). *Yucatan*: Temax (K). *Baja California*: San Miguel.

Also Guatemala: Capetillo. Colombia.

NEW RECORDS FOR MEXICO: *Chihuahua*: Two miles west of Matachic (L), July 7, 1947, 6400 feet, one; Santa Barbara, Santa Barbara District (M), July 17, 1947, 6300 feet, one; Santa Barbara (M), July 18, 1947, 6300 feet, one; Catarinas (N), July 26, 1947, 5800 feet, one. *Durango*: Encino (O), July 27, 1947, 6200 feet, two; Rodeo, San Juan del Rio District (P), July 29, 1947, 4700 feet, one; Otinapa (Q), August 11, 1947, 8200 feet, one; Palos Colorado (R), August 5, 1947, 8000 feet, 14. *San Luis Potosí*: Between Barbarita and Aguazarca (S), June 18, 1948, 3600 feet (G. M. Bradt), four.

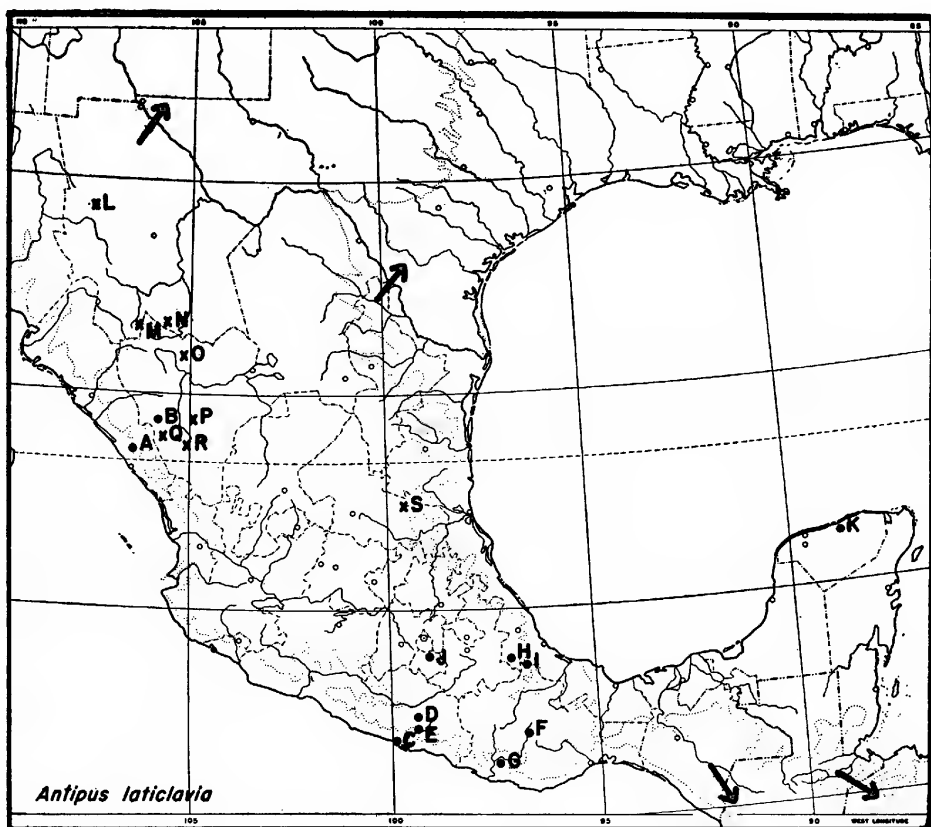


FIG. 2. Distribution of *Antipus laticlavus* (Forster).

### *Antipus brevilineatus* (Jacoby)

*Tibuboea brevilineata* JACOB, 1888, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, suppl., p. 66, pl. 36, fig. 18.

A species of rather limited range being more or less restricted to the plateau region of central Mexico where it appears to be extremely localized. Nothing is known of its habits or food plants. This species is sometimes confused with certain color forms of *Antipus laticlavus* Forster but can usually be easily separated by its slightly larger size; finely rugose area between the eyes, fulvous legs, and fulvous markings on the clypeus, labrum, mandibles, and a small spot near each eye. No specimens were taken by the expedition, but a number are in the collections of the American Museum of Natural History from central Mexico.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Refugio; Durango City. *Veracruz*: Jalapa.

NEW RECORDS FOR MEXICO: *Jalisco*: Vicinity of Pegueros, June 16, 1949, 6700 feet (G. M. Bradt), two; Guadalajara, June–July, 1903 (J. F. McClendon), 78.

***Antipus militaris* (LeConte)**

*Clythra militaris* LECONTE, 1858, Proc. Acad. Nat. Sci. Philadelphia, vol. 10, p. 83.

The two specimens taken on the expedition broaden the known range of this small species much farther to the south. It has heretofore been taken in Texas and the Huachuca and Pinal Mountains in Arizona.

TYPE LOCALITY: New Braunfels, Texas.

RECORDED MEXICAN DISTRIBUTION: No authentic Mexican records.

NEW RECORDS FOR MEXICO: *Chihuahua*: Cañon Prieto, near Primavera, July 2, 1947, 6500–6800 feet, two.

***Megalostomis dimidiata* (Lacordaire)**

*Minturnia dimidiata* LACORDAIRE, 1848, Mém. Soc. Roy. Sci. Liège, vol. 5, p. 526.

Only a single specimen of this rather large and distinctive species was obtained on the expedition. They never seem to be taken in numbers, but individual specimens have been collected in numerous locations throughout its range. In the American Museum collections there are a dozen specimens from various localities, mostly to the south of the region covered by the expedition, except one from Arispe, Sonora, in the far northwestern part of Mexico, not far from the United States border. As far as known this species has never been taken north of the border. This is definitely a Central American species having ascended into the Mexican highlands throughout northern Mexico, from the more humid regions of southern Mexico and the Central American countries, but apparently not spreading out into South America, for here it is replaced by other species of the genus. Little is known of its habits and host plants.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Coahuila*: Monclova. *Durango*: Durango City. *Jalisco*: Zapotlan; Guadalajara. *Guerrero*: Chilpancingo. *Colima*: Colima City. *Puebla*: Irapuato; Matamoros Izucar. *Michoacan*: Tacambaro. *Oaxaca*: Capulalpam.

*Morelos*: Cuernavaca. *Guanajuato*: Guanajuato. *Veracruz*: Veracruz; Jalapa.

Also Guatemala: San Geronimo. Nicaragua: Chontales.

NEW RECORDS FOR MEXICO: *Durango*: Durango, August 14, 1947, 6200 feet, one. *Sonora*: Arispe, one. *Guerrero*: Vento de Peregrino (H. H. Smith), one. *Morelos*: Cuautla, July–August, 1903 (W. L. Tower), two; Joyutlu, August, 1903 (W. L. Tower), two. *Jalisco*: Environs of Guadalajara, 1901 (M. Diguët), two.

Also Honduras: Tegucigalpa, June 30, 1918 (F. J. Dyer), one.

### ***Coscinoptera aeneipennis* LeConte**

*Euryscopa aeneipennis* LECONTE, 1858, Jour. Acad. Nat. Sci. Philadelphia, vol. 4, sect. 2, p. 26.

This is one of the larger species of the genus. It is easily recognized by its brassy appearance, with the head, thorax, scutellum, and under side pubescent. Thorax finely but densely punctate. Elytra with coarse punctures arranged in rather regular striae, but confused near the scutellum. Because of the striate appearance it is frequently placed in the genus *Euryscopa* LeConte. This species is definitely an inhabitant of the Mexican plateau. From western Texas, New Mexico, Arizona, southern California, and Tiburon Island, it ranges south into central Mexico. The specimens taken on the expedition supply a number of new locality records for northern Mexico.

TYPE LOCALITY: Llano Estacado, Texas.

RECORDED MEXICAN DISTRIBUTION: *Hidalgo*: Pachuca. *Guanajuato*: Guanajuato.

NEW RECORDS FOR MEXICO: *Chihuahua*: Ninety-two kilometers north of Chihuahua, June 30, 1947, one; Oja Laguna, June 30, 1947, two; 42 miles southwest of Camargo, July 15, 1947, 4900 feet, one; Salaices, July 23, 1947, one. *Durango*: Rodeo, San Jaun del Rio District, 4700 feet, three. *Chihuahua*: Santa Barbara, May 15, 1948, 6200 feet (G. M. Bradt), nine; Terrero, May 26, 1948, 5500 feet (G. M. Bradt), one.

### ***Coscinoptera schaefferi* Clavareau**

Figure 3

*Coscinoptera schaefferi* CLAVAREAU, 1907, Genera insectorum, Coleoptera, fasc. 49, p. 88 (new name).

*Coscinoptera tibialis* SCHAEFFER, 1905, Sci. Bull. Brooklyn Inst., vol. 1, p. 135.



I have assigned 20 specimens taken on the expedition to this species, which Schaeffer described as *tibialis*, based on four specimens from Baja California. Since the name *tibialis* was preoccupied, Clavareau assigned the name *schaefferi*. The specimens also fit the description and figure of *Euryscopa semistriata* Jacoby (1888–1892, p. 78, pl. 37, fig. 4). Jacoby based his description on one specimen from Durango City, Mexico. I have never seen any specimens labeled *semistriata* Jacoby, but from the description, "elytra closely and rather irregularly punctured, with longitudinal rows of large punctures," I believe Jacoby's specimen to be a *Coscinoptera*. There was even some question in the mind of Jacoby for he wrote, "The punctuation of *E. semistriata* does not seem to me to be irregular enough to place the species in *Coscinoptera*." Only with the acquisition of more material from this area can a more exact conclusion be reached as to the status of these species. In the 20 specimens examined I find some slight variation.

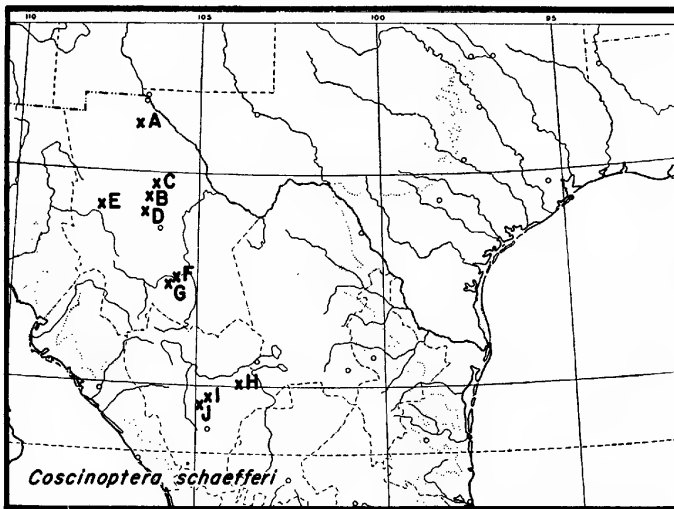


FIG. 3. Distribution of *Coscinoptera schaefferi* Clavareau.

TYPE LOCALITY: Baja California.

RECORDED MEXICAN DISTRIBUTION: *Baja California*.

NEW RECORDS FOR MEXICO: *Chihuahua*: Samalayuca (A), June 24, 1947, three; Santa Clara Canyon, 5 miles west of Parrita (B), June 27, 1947, 5600 feet, one; Cañon Prieto, near Primavera (C), July 2, 1947, 6500–6800 feet, one; Santa Clara (D), July 2, 1947, five; 8 miles west of Matachic (E), July 8, 1947, 7200 feet, one; 25 miles southwest of Camargo (F), July 14, 1947, one; 42 miles

southwest of Camargo (G), July 15, 1947, one. *Durango*: Pedricena (H), August 19, 1947, 4500 feet, one; Rodeo, San Juan del Rio District (I), July 29, 1947, 4700 feet, five; San Juan del Rio (J), July 30, 1947, 5200 feet, one.

### ***Euryscopa lecontei* Crotch**

Figure 4

*Euryscopa lecontei* CROTCH, 1873, Proc. Acad. Nat. Sci. Philadelphia, vol. 25, p. 28.

Two hundred and eighteen specimens of this species were taken on the expedition, most of them from one locality. Jacoby did not recognize this species from Mexico. However, he described two species, *E. longicollis* and *parvula* (1888–1892, pp. 78–79) which are now generally conceded to be synonymous. *E. lecontei* resembles very closely Lacordaire's *E. scapularis* and by some authors is considered a synonym of the latter. The most conspicuous character is the thickly pubescent scutellum of *scapularis* and the tendency for the head and thorax to be more finely punctate. An occasional specimen of *lecontei* will have a few, seldom more than four or five, white hairs on the scutellum. I consider the two to have enough specific differences to retain the two names. The species has been collected along the border in Texas, Arizona, southern California, and Mexico.

TYPE LOCALITY: Texas boundary.

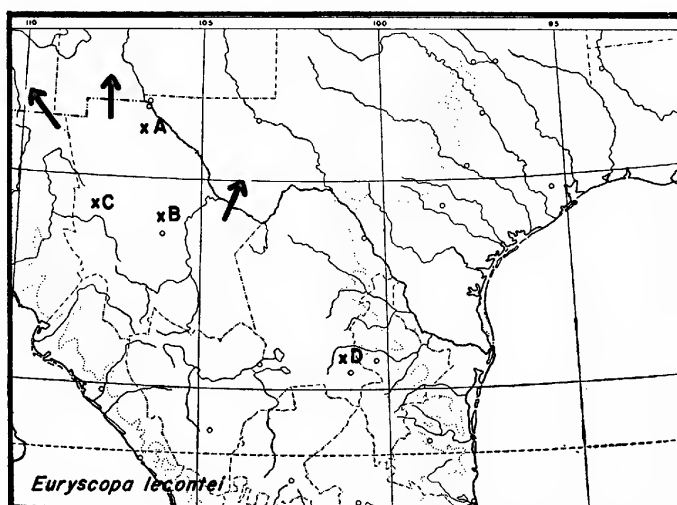


FIG. 4. Distribution of *Euryscopa lecontei* Crotch.

RECORDED MEXICAN DISTRIBUTION: *Northern Sonora.*

NEW RECORDS FOR MEXICO: *Chihuahua*: Samalayuca (A), June 24, 1947, five; 92 kilometers north of Chihuahua (B), June 30, 1947, one; 8 miles west of Matachic (C), July 8, 1947, 7200 feet, 210. *Coahuila*: Guadalupe (D), August 23, 1947, one.

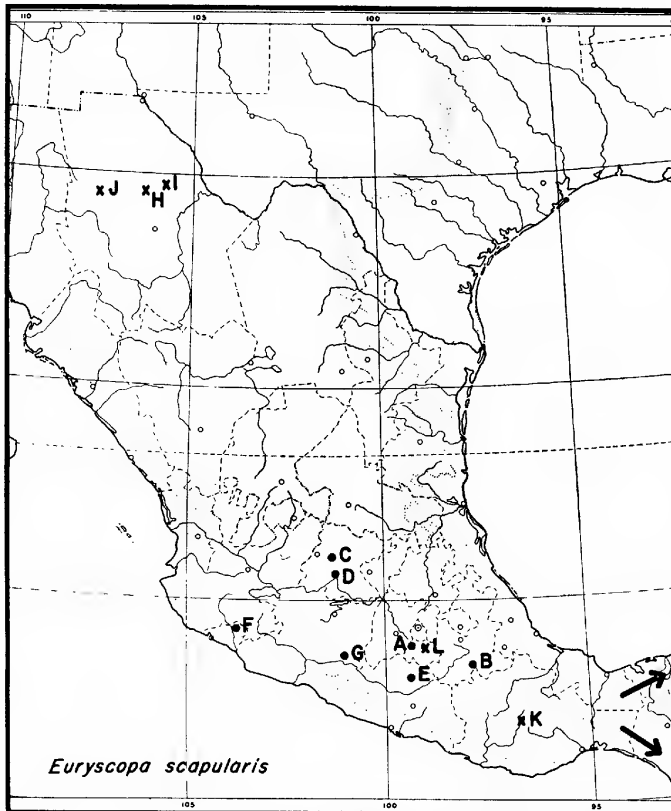
Also Texas: El Paso, El Paso County, June 23, 1947, one.

***Euryscopa scapularis* Lacordaire**

Figure 5

*Euryscopa scapularis* LACORDAIRE, 1848, Mém. Soc. Roy. Sci. Liège, vol. 5, p. 505.

Lacordaire's species appears to begin where Crotch's *E. lecontei* stops, for its distribution starts south of the Rio Grande (as far as known it has not been taken in the United States) and extends into Guatemala. Only three specimens from three localities were taken on the expedition.

FIG. 5. Distribution of *Euryscopa scapularis* Lacordaire.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Morelos*: Cuernavaca (A). *Puebla*: Izucar (B). *Guanajuato*: Guanajuato (C); Irapualo (D). *Guerrero*: Iguala (E). *Colima*: Colima City (F). *Michoacan*: Huetamo (G). *Yucatan*: Temax.

Also Guatemala: San Geronimo, Llano Grande.

NEW RECORDS FOR MEXICO: *Chihuahua*: Ojo Laguna (H), June 30, 1947, one; Santa Clara Canyon, 5 miles west of Parrita (I), June 27, 1947, one; 8 miles west of Matachic (J), July 8, 1947, one. *Oaxaca*: Oaxaca (K), August 11, 1903 (W. L. Tower), one, *Morelos*: Cuautla (L), July-August, 1903 (W. L. Tower), one.

### ***Babia quadriguttata pulla* Lacordaire**

*Babia pulla* LACORDAIRE, 1848, Mém. Soc. Roy. Sci. Liège, vol. 5, p. 429.

The three specimens taken on the expedition are typical examples of this subspecies. The principal character which distinguishes it from *B. quadriguttata* Olivier is the very finely, almost impunctate, punctulate thorax. Jacoby (1880-1892, p. 82) regards it as a distinct species. However, the characters are not pronounced enough to give it specific rank. This is the form that is found throughout Mexico from southwestern United States south to Guatemala. Although widely distributed, specimens are scarce in collections. The food plant is unknown, although *B. quadriguttata* is recorded as feeding on milkweed and other roadside vegetation.

TYPE LOCALITY: United States and Mexico.

RECORDED MEXICAN DISTRIBUTION: *Northern Sonora*. *Sonora*: Guaymas, April 19, nine.

NEW RECORDS FOR MEXICO: *Durango*: Six miles northeast of El Salto, Durango District, August 10, 1947, 8500 feet, three.

### ***Urodera crucifera* Lacordaire**

Figure 6

*Urodera crucifera* LACORDAIRE, 1848, Mém. Soc. Roy. Sci. Liège, vol. 5, p. 454.

A common insect throughout its range which extends from Texas, New Mexico, and Arizona south through Mexico, Guatemala, and into Nicaragua. It is a conspicuous insect with its black head and thorax and bright orange-red elytra crossed with a black



medial fascia which frequently joins the black sutural line. The medial black band is extremely variable in size, sometimes very wide and covering most of the elytra, sometimes reduced to a small black spot, and may even be entirely lacking.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Ventanos (A). *Nuevo Leon*: Monterrey (B). *Michoacan*: Tacambaro (C); Hue-tamo (D). *Guerrero*: Chilpancingo (E); Iguala (F). *Chiapas*: Tapachula (G). *Oaxaca*: Etla (H). *Morelos*: Cuernavaca (I). *Veracruz*: Veracruz (J). *Yucatan*: Temax (K).

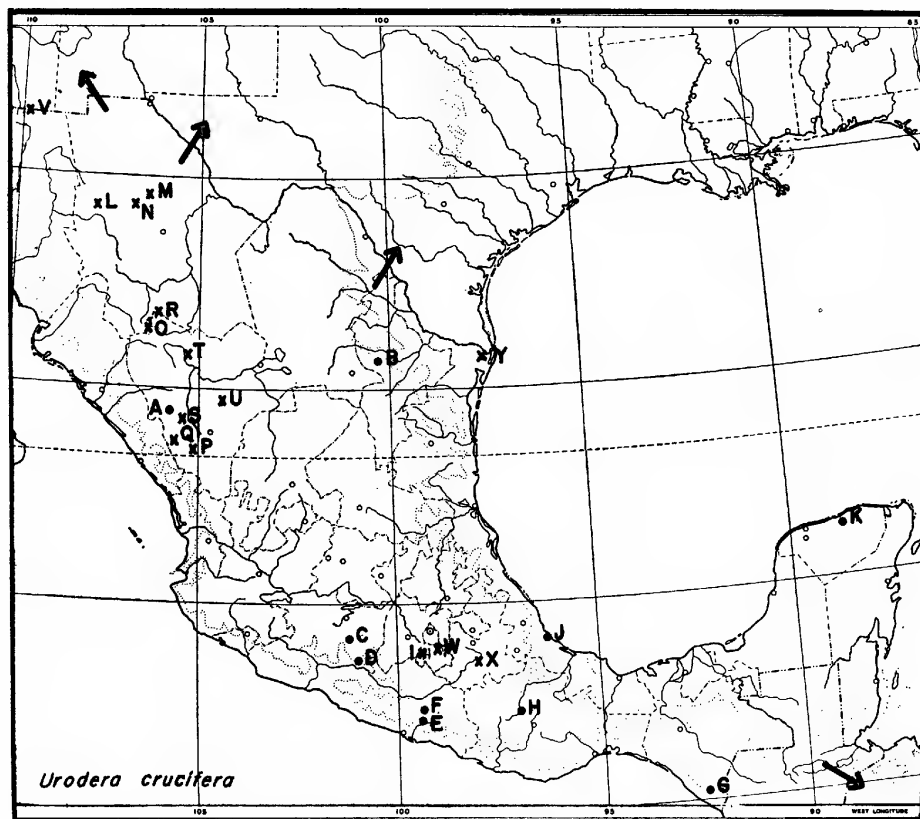


FIG. 6. Distribution of *Urodera crucifera* Lacordaire.

Also Guatemala: San Geronimo; Duenas. Nicaragua: Chontales.

NEW RECORDS FOR MEXICO: *Chihuahua*: Two miles west of Matachic (L), July 7, 1947, 6400 feet, four; 10 miles west of Nami-quipa (M), July 3, 1947, 6600 feet, five; Cañon Prieto near Primavera (N), July 2, 1947, 6500–6800 feet, two; Kilometer 36, Santa Barbara–Ojito (O), August 17, 1947, 6900 feet (G. M. Bradt).

one. *Durango*: Palos Colorados (P), August 5, 1947, 8000 feet, 39; 6 miles northeast of El Salto, Durango District (Q), August 10, 1947, 8500 feet, six; Les Puentes (R), July 24, 1947, 7500 feet, one; Coyotes, Durango District (S), August 10, 1947, 8500 feet, one; Encino (T), July 27, 1947, one; near San Gabriel (U), June 24, 1947 (G. M. Bradt), one. *Sonora*: Naco (V), August 15, 1949, 5000 feet (G. M. Bradt), two. *Morelos*: Cuautla (W), July–August, 1903 (W. L. Tower), five; Cuernavaca (I), July–August, 1903 (W. L. Tower), seven. *Puebla*: Atlixco (X), August 13, 1903 (W. L. Tower), two. *Tamaulipas*: Matamoros (Y), August 11, 1903 (W. L. Tower), one.

Also numerous specimens from southern Arizona, New Mexico, and Texas.

### ***Saxinis sonorensis* Jacoby**

*Saxinis sonorensis* JACOBY, 1889, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, suppl., p. 88, pl. 37, fig. 10.

Known at present only from Arizona and northern and southern Mexico. The nine specimens collected on the expedition add five additional localities. Although rather rare in collections, this very attractive beetle is undoubtedly more widely distributed than is realized. Nothing is known of the life history.

TYPE LOCALITY: Northern Sonora, Mexico.

RECORDED MEXICAN DISTRIBUTION: *Oaxaca*: Juquila, Oaxaca.

NEW RECORDS FOR MEXICO: *Chihuahua*: Cañon Prieto near Primavera, July 2, 1947, 6500–6800 feet, four; 10 miles west of Namiquipa, July 3, 1947, 6600 feet, one; Santa Barbara, Santa Barbara District, July 18, 1947, 7500 feet, one. *Durango*: San Juan del Rio, July 30, 1947, 5200 feet, two; Palos Colorados, August 5, 1947, 8000 feet, one.

### ***Saxinis apicalis* LeConte**

Figure 7

*Saxinis apicalis* LECONTE, 1885, Trans. Amer. Ent. Soc., vol. 12, p. 25.

The apical red spots on the elytra easily separate this species from all the other known species of *Saxinis*. It is not common in collections and heretofore has been taken only in Arizona. The four specimens collected on the expedition extend the known distribution of this insect far to the south, and in four distinct localities.

TYPE LOCALITY: Southern Arizona.

RECORDED MEXICAN DISTRIBUTION: No previous records.

NEW RECORDS FOR MEXICO: *Chihuahua*: Eight miles west of Matachic (A), July 8, 1947, 7200 feet, one; Catarinas (B), July 26, 1947, 5800 feet, one. *Durango*: Rodeo, San Juan del Rio District (C), July 29, 1947, 4700 feet, one; San Juan del Rio (D), July 30, 1947, 5200 feet, one.

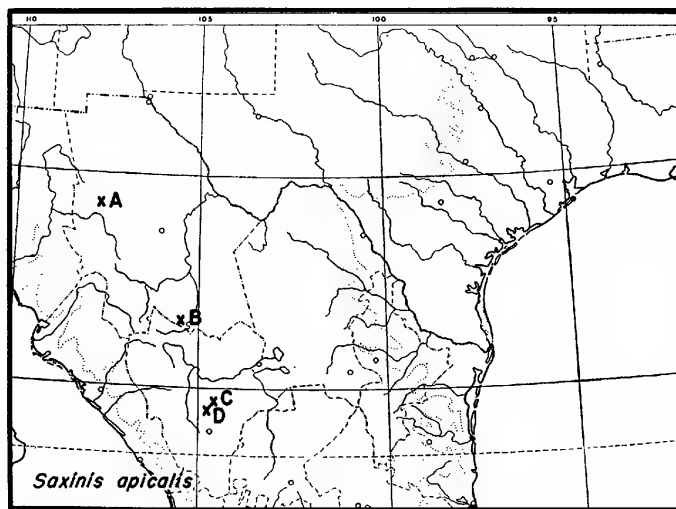


FIG. 7. Distribution of *Saxinis apicalis* LeConte.

#### SUBFAMILY CRYPTOCEPHALINAE

This subfamily contains generally small, robust, more or less cylindrical species. Head inserted into the thorax nearly or up to the eyes, antennae long, slender, usually longer than head and thorax, in a few genera shorter and subserrate; eyes large, somewhat emarginate; thorax narrowly margined, as wide as elytra and closely applied to the latter; elytra not tuberculate, usually with rows of punctures, rather short, leaving the tip of the pygidium exposed; front coxae rounded, not prominent, separated by the prosternum; middle and hind coxae each widely separated. Many are brightly colored in various combinations of spots and stripes. In some species the color pattern is inconstant. This inconstancy has resulted in the naming of numerous subspecies, varieties, and aberrations.

This is a very large group, distributed throughout most of the world, from the tropics, where they are most numerous, into the high latitudes as well as high altitudes. Over 3000 species have been

described and new ones are constantly being added. A good 300 are to be found in Mexico and the Central American countries, while nearly 250 have been listed from North America. Eleven species and one new subspecies were taken on the expedition.

### **Griburius montezuma (Suffrian)**

*Scolochrus montezuma* SUFFRIAN, 1852, Linnaea entomologica, vol. 7, p. 116.

Two specimens of this attractive and distinctively marked beetle were taken on the expedition—one from Mexico, the other just over the border in Texas. It ranges from Texas, Arizona, and Baja California south into northern Mexico. The species appears to be rather uncommon and is probably rather localized throughout its range, for specimens are rare in collections. Nothing is known of its habits and food plants.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: No exact localities recorded.

NEW RECORDS FOR MEXICO: *Chihuahua*: Eighty kilometers north of Chihuahua City, June 30, 1947, one.

Also Texas: Chisos Basin, Big Bend National Park, June 14, 1947, one.

### **Griburius montezuma suffriani (Jacoby)**

*Scolochrus suffriani* JACOBY, 1880, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 60, pl. 4, fig. 7.

Equally uncommon in collections, this beetle, regarded as a distinct species by Jacoby, is now usually considered a subspecies of *G. montezuma*. It differs principally in having the basal area of the elytra largely yellowish. This seems to be a more western and southern form of *G. montezuma*, ranging from Arizona and Baja California to Mexico City and southward.

TYPE LOCALITY: Tehuantepec, Mexico.

RECORDED MEXICAN DISTRIBUTION: *Oaxaca*: Tehuantepec.

NEW RECORDS FOR MEXICO. *Sonora*: Five miles west of Guaymas, April 21, 1949 (G. M. Bradt), one. *Morelos*: Cuautla, July 13, 1946 (J. and D. Pallister), one.

### **Pachybrachys virgatus LeConte**

Figure 8

*Pachybrachys virgatus* LECONTE, 1880, Trans. Amer. Ent. Soc., vol. 8, p. 205.

A large series of this pretty beetle was taken on the expedition



from five localities south of the border, where it has never before been recorded. Heretofore it has been recorded only from a rather limited area of Nebraska, Kansas, and Colorado, south into Texas and Arizona. The insect is scarce in collections and might easily be confused with *P. dubiosus* LeConte, from which it differs mainly in its larger size and in the fact that the median pronotal stripe is dilated anteriorly instead of being V-shaped.

Extremely little variation, both in size and color, is shown among the 206 specimens taken in Mexico. They measure from 3.5 mm. to 4.5 mm., with most of them 3.8 mm. to 4 mm. A few

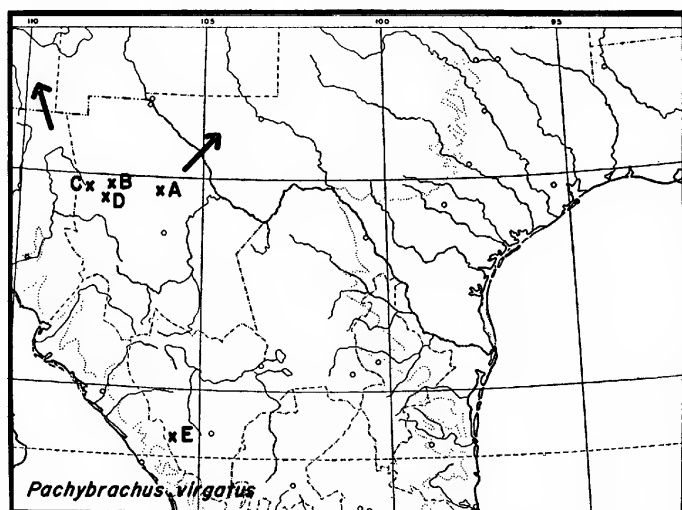


FIG. 8. Distribution of *Pachybrachys virgatus* LeConte.

have the brown-black elytral stripes a trifle thinner, making them appear slightly lighter. Others in reverse appear slightly darker. Nothing is known of their habits or food plants.

TYPE LOCALITY: Kansas, Nebraska.

RECORDED MEXICAN DISTRIBUTION: No previous records.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Clara (A), July 2, 1947, five; San José Babicora (B), July 5, 1947, 38; Madera (C), July 6, 1947, 7200 feet, 146; Matachic (D), July 7, 1947, 15. *Durango*: Six miles northeast of El Salto, Durango District (E), August 10, 1947, 8500 feet, two.

### ***Pachybrachys xanti* Crotch**

*Pachybrachys xanti* CROTCH, 1873, Proc. Acad. Nat. Sci. Philadelphia, vol. 25, p. 32.

The three specimens of this species collected on the expedition from northern Mexico enlarge the known distribution of this species. It is a species of southwestern United States, ranging from Utah south into Texas, southern California, and Baja California. Undoubtedly it occurs over a much larger area of northern Mexico than at present known.

TYPE LOCALITY: Baja California.

RECORDED MEXICAN DISTRIBUTION: *Baja California*: Island of San Marcos.

NEW RECORDS FOR MEXICO: *Chihuahua*: Samalayuca; June 24, 1947, three.

### ***Pachybrachys forreri* Jacoby**

*Pachybrachys forreri* JACOBY, 1888, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, suppl., p. 141, pl. 38, fig. 24.

This is a well-marked and easily recognized species, but appears, as far as known, to be limited in its distribution to a very small area in north central Mexico. The localities of the two specimens taken on the expedition, although separate, are not far from the type locality.

TYPE LOCALITY: Ciudad in Durango, Ventanas in Durango, Mexico.

RECORDED MEXICAN DISTRIBUTION: The type localities.

NEW RECORDS FOR MEXICO: *Durango*: San Juan del Rio, July 30, 1947, 5200 feet, one; Coyotes, Durango District, August 8, 1947, 8300 feet, one.

### ***Pachybrachys mellitus* Bowditch**

*Pachybrachys mellitus* BOWDITCH, 1909, Canadian Ent., vol. 41, p. 241.

Not before recorded from Mexico. Previous recorded range from Utah south to Texas, Arizona, and southern California. The three specimens from two widely separated localities in northern Mexico broaden the known range of this species far to the south. More intensive collecting throughout Mexico would undoubtedly produce specimens from the entire northern half of the country.

TYPE LOCALITY: Not definitely designated, but Bowditch in his description lists Injo Mountains, Mojave, Darwin, California; Tucson, Arizona; and St. George, Utah.

RECORDED MEXICAN DISTRIBUTION: No records.

NEW RECORDS FOR MEXICO: *Durango*: Pedricena, August 19,

1947, 4500 feet, one. *Coahuila*: Five miles north of Saltillo, August 22, 1947, 5100 feet, two.

### ***Pachybrachys gregaria* Suffrian**

*Pachybrachys gregarius* SUFFRIAN, 1852, Linnaea entomologica, vol. 7, p. 215.

The 21 specimens of this species taken on the expedition place the known range much farther to the north. Heretofore it has been taken only from central Mexico, never recorded from the United States. Probably the species could be found over the entire plateau region of Mexico wherever the food plant occurs. What this is, however, has never been mentioned.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Morelos*: Cuernavaca. *Oaxaca*: Juquila.

NEW RECORDS FOR MEXICO: *Durango*: Palos Colorados, August 5, 1947, 8000 feet, 21.

### ***Pachybrachys immaculata* Jacoby**

*Pachybrachys immaculata* JACOBY, 1888, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, suppl., p. 148.

Described from two specimens taken in Mexico City. *Pachybrachys immaculata* Jacoby was later taken in Texas and Arizona. The five specimens collected on the expedition from two widely separated points in northern Mexico help to define the range. Nothing is known about its habits or food plants.

TYPE LOCALITY: Mexico, near Mexico City.

RECORDED MEXICAN DISTRIBUTION: *Distrito Federal*: Mexico City. La Parada (not located).

NEW RECORDS FOR MEXICO: *Chihuahua*: Delicias, July 13, 1947, four. *Coahuila*: San Pedro de Colonias, August 20, 1947, 3700 feet, one.

### ***Cryptocephalus basalis* Suffrian**

*Cryptocephalus basalis* SUFFRIAN, 1852, Linnaea entomologica, vol. 7, p. 54.

A widely distributed but not very common species, ranging from Indiana, Kansas, Texas, south through Mexico into Guatemala. It is an extremely variable species throughout its range in the amount of red present in the markings on the elytra. In some the basal red area is limited to a narrow band, and the apical spots

may be missing. In others the red band is broad, sometimes joining with the apical spot along the margin. At the present time there is not enough material available to make a comprehensive study of the exact status of the species. Some of these variations have received names, e.g., *C. cruentatus* Suffrian and *C. mucoreus* LeConte, which are now considered synonymous.

TYPE LOCALITY: El Mirador, Mexico.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Milpas; Ciudad; Ventanas; Refugio. *Michoacan*: Huetamo. *Guerrero*: Acapulco; Chilpancingo; Omilteme. *Morelos*: Cuernavaca. Parada (not located). Yolotypec (not located).

Also Guatemala: Duenas, Capetillo.

NEW RECORDS FOR MEXICO: *Chihuahua*: One mile east of La Saucedá, July 21, 1947, 7000 feet, one. *Durango*: Palos Colorados, August 5, 1947, 8000 feet, one; 6 miles northeast of El Salto, August 10, 1947, 8500 feet, one.

### ***Cryptocephalus abruptus* Suffrian**

Figure 9

*Cryptocephalus abruptus* SUFFRIAN, 1852, *Linnaea entomologica*, vol. 6, p. 245.

A series of 33 specimens from seven localities of this rather widely distributed and extremely variable insect were taken on the expedition, all of which I am referring to this species. Several of the specimens are typical *C. maculipennis* Suffrian (1852, p. 30). In between, however, there are innumerable variations in which the black vittae are broken up into spots or short lines or no definite number or pattern. All these I believe will eventually be united under the one name *abruptus* Suffrian. Jacoby (1888–1892, pp. 99, 107), when writing of these two species, was also of this opinion. This can be definitely done only when a large amount of material from various locations is made available for study. *C. abruptus* is a species of the Mexican plateau extending from the extreme northern part (but not as yet recorded north of the border), south into the more humid regions of southern Mexico.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: Of *abruptus*: *Chihuahua*: Santa Clara (A). *Guanajuato*: Tupataro (B). Of *maculipennis*: *Durango*: Durango City (C). *Guerrero*: Iguala (D); Amula (E). *Guanajuato*: Tupataro (B). *Morelos*: Yautepec (F); Cuernavaca (G). *Veracruz*: Orizaba (H).

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Clara (I), July 2, 1947, eight; San José Babícora (J), July 5, 1947, one; Madera (K), July 6, 1947, 7200 feet, three; 20 miles southwest of Camargo (L), July 13, 1947, 4500 feet, 13; 25 miles southwest of Camargo (L), July 14, 1947, five; Catarinus (M), July 26, 1947, 5800 feet, two. *Durango*: Palos Colorados (N), August 5, 1947, 8000 feet, one.

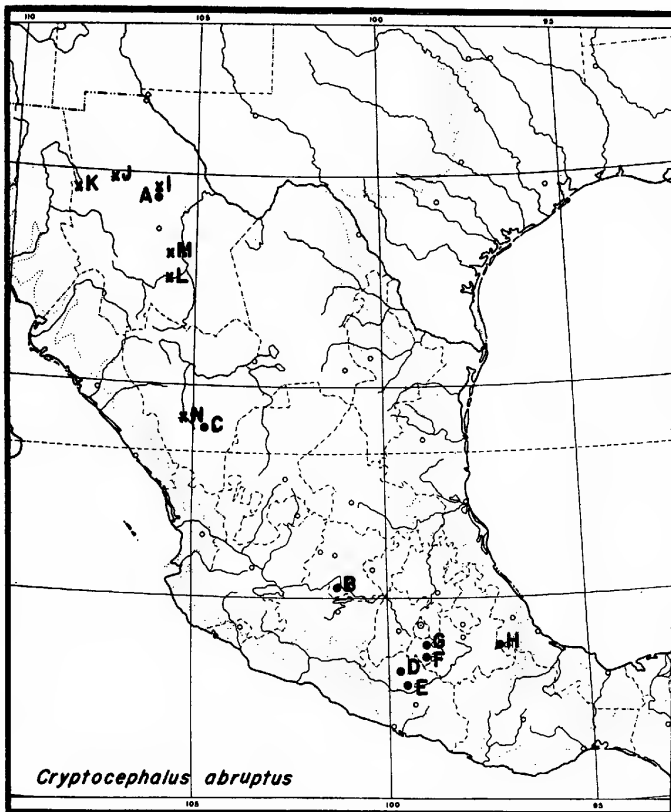


FIG. 9. Distribution of *Cryptocephalus abruptus* Suffrian.

### ***Cryptocephalus insolidus* Suffrian**

*Cryptocephalus insolidus* SUFFRIAN, 1852, *Linnaea entomologica*, vol. 7, p. 29.

This brightly colored insect is extremely rare in collections. Jacoby mentions seeing only one specimen, collected by Champion in Guatemala. The one specimen taken on the expedition is the only record for Mexico.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: No recorded Mexican localities. Guatemala: Calderas (Champion).

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Clara, Nami-quipa District, July 3, 1947, 6500 feet, one.

***Cryptocephalus arizonensis schrammeli*, new subspecies**

Similar to *C. arizonensis* Schaeffer, but differing from that form principally in the lack of any trace of yellow along the epipleura, which is entirely black. Also the finely punctured pronotum is more distinctly alutaceous, making the punctures difficult to see. Scutellum slightly broader and more distinctly punctured. Elytral striae more closely and coarsely punctured, only slightly less distinct towards the apex. Intervals distinctly rugulose. Otherwise the same color and shape as *C. arizonensis*. Length, 5 mm.

TYPE MATERIAL: Holotype, male, collected 6 miles northeast of El Salto, Durango District, Durango, Mexico, August 10, 1947, 8500 feet, David Rockefeller Mexican Expedition (Schrammel, collector). Allotype, male, same data as holotype. Paratype, one male, collected at Palos Colorados, Durango, Mexico, August 5, 1947, 8000 feet, David Rockefeller Mexican Expedition (Schrammel, collector). All type material in the collection of the American Museum of Natural History.

I have compared these specimens not with the type of *C. arizonensis* Schaeffer, but with the excellent description of Schaeffer (1904, p. 225) based on two specimens, Pinal Mountains, Arizona (Palm Collection); and also with three specimens in the collection of the American Museum of Natural History, two of these also from the Pinal Mountains, Arizona (Palm Collection), and one specimen, Walnut Canyon, Coconino County, Arizona, July 29, 1950, 6400–6700 feet (Cohn, Boone, Cazier, collectors).

This subspecies also will run to *C. sanguinicollis* Suffrian in LeConte's key (1880), but like typical *C. arizonensis* differs in the larger size, more robust form, and the distinctly blue elytra.

This attractive subspecies is named after Mr. Rudolph Schrammel, one of the expeditions's party and whose name appears on the label as collector.

**SUBFAMILY CHLAMISINAE**

The Chlamisinae, appearing in the older literature as Chlamydinae, are small, robust, nearly spherical beetles. Most of them are covered with elevations or tubercles, and with their habit of



drawing the legs up to the body and "playing possum," they look very much like round rough seeds or pieces of cinder. Head small, set into the thorax to the eyes which are large and emarginate, antennae widely separated, short, serrate, and received in grooves on the side of the prosternum. Thorax sharply sinuate at base, closely fitted to elytra; scutellum usually broad, truncate behind, with a median tooth in front which fits into a notch in the base of the thorax; elytral suture in most genera with minute teeth which dovetail. Pygidium exposed.

The larvae, like those of some of the Chryptocephalinae, live on the surface of the leaves and construct enclosing cases composed of their own excrement, molded into shape by their mandibles. They carry these cases about with them as they feed, with only the head and legs protruding. When about to pupate, they attach the case to the plant stem, close the opening with silk, making an excellent cocoon.

The subfamily Chlamisinae is not a large group, with most of the species from the tropics of South America. Some 350 have been described from all parts of the world. Over 80 of these are found in Mexico and the Central American countries, while about 20 occur in the United States and Canada. Two species were taken on the expedition.

### **Chlamisus memnonia** (Lacordaire)

*Chlamys memnonia* LACORDAIRE, 1848, Mém. Soc. Roy. Sci. Liège, vol. 5, p. 708.

Although widely distributed from Texas and Arizona southward into Guatemala, this species appears to be nowhere common. It can generally be recognized by the two sharply elevated triangular areas of the prothorax forming a deep cleft, and the three rows of raised sharp tubercles diagonally crossing the elytra. Black-bronze in color.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Cordova. *Yucatan*.

Also Guatamala: Zapote.

NEW RECORDS FOR MEXICO: *Durango*: Palos Colorados, August 5, 1947, 8000 feet, four.

### **Chlamisus prosternalis** (Schaeffer)

*Chlamys prosternalis* SCHAEFFER, 1905, Science Bull. Mus. Brooklyn Inst., vol. 1, p. 227.

Although only a few specimens have been collected, this species probably occurs in favorable places along the Mexico-Texas border. Somewhat similar to *Chlamisus memnonia* (Lacordaire), but the elevated areas of the prothorax are more conical instead of triangular, and the rows of tubercles of the elytra are more broken. Deep bronze in color.

TYPE LOCALITY: Brownsville, Texas (Yucca Ridges and Esperanza Ranch).

RECORDED MEXICAN DISTRIBUTION: *Sonora*: Guaymas, April 9, one.

NEW RECORDS FOR MEXICO: *Chihuahua*: Ninety-two kilometers north of Chihuahua, June 30, 1947, one.

#### SUBFAMILY LAMPROSOMINAE

Small, round or nearly round, very convex, shining blue, green, or bronze, nearly smooth beetles make up this subfamily. Head turned under the thorax, invisible from above, inserted into the thorax up to the eyes, which are moderately large; antennae short, wide apart, somewhat dentate; thorax convex, usually finely punctured, as wide as elytra, and deeply sinuate at base, fitted closely to elytra; scutellum small, elongate-triangular; elytra convex, smooth, usually striate-punctate, sometimes irregularly punctate, covering the pygidium; tibiae of legs frequently distinctly dilated.

The Lamprosominae were at one time grouped with the Chlamiinae because of certain similar characters. On the other hand they have other close affinities with the Eumolpinae, with which they are now placed. The Lamprosominae, Eumolpinae, and Chrysomelinae form one of the five groups, the Cyclica, into which the Chrysomelidae are divided in one of our accepted classifications.

A very small subfamily of approximately 170 species, known from all parts of the world. Tropical America is the richest, having over 140 species. Over 70 species have been recorded from the Central American countries, only two from north of the Mexican border, one from Florida, and one from Arizona. None were taken on the expedition.

#### SUBFAMILY EUMOLPINAE

Although the beetles of this subfamily are small to medium in size, they are an attractive group, because many of them are bright

metallic or iridescent in hue. They are usually oblong, convex, seldom rounded or oval species. Head plainly visible, although somewhat deflexed, eyes more or less emarginate, antennae usually long, filiform, widely separated at base; thorax frequently margined at base; elytra rounded at tip, covering the abdomen; front coxae globose, separated by the prosternum, cavities closed behind; tarsi broad, third joint deeply lobed.

The adults are frequently seen resting on a leaf in the sunshine. At the slightest approach of danger they promptly release their hold and either attempt to fly away or roll to the ground to disappear from sight until the disturbance is over. A few of the species that feed on plants of economic importance sometimes become plentiful enough to become a pest, but most of the species never conflict with man's interest.

This is one of the larger of the subfamilies, with about 3500 species distributed throughout the world. They are most plentiful in the tropics, with about 1100 species in the American tropics south of the United States. Only about 100 are recorded from north of the Mexican boundary. Ten species were taken on the expedition.

### ***Spintherophyta cephalotes* Lefevre**

*Spintherophyta cephalotes* LEFEVRE, 1876, Ann. Soc. Ent. France, ser. 5, vol. 7, p. 115.

This is one of a few species of this tropical genus that extends into Mexico. It closely resembles *S. lesueuri* Lefevre in size and general color, but differs from that species in having yellowish or fulvous legs and antennae. This one specimen is far to the north of previous records, which restricts it to the humid regions of southeast Mexico.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Cordoba.

NEW RECORDS FOR MEXICO: *Coahuila*: Guadalupe, August 23, 1947, one.

### ***Chrysochus auratus* (Fabricius)**

*Chrysomela auratus* FABRICIUS, 1775, Systema entomologie, p. 101.

Sixteen specimens of this beetle, commonly known as the Dogbane Beetle, were taken on the expedition. While it is widely distributed throughout the eastern half of the United States and

extends south into Arizona, and is usually found wherever its food plant, the dogbane, grows, I know of no other specimens having been collected in Mexico. The specimens from Nombre de Dios, Durango, Mexico, entirely disrupt our previously recognized range of this conspicuous insect. One might expect that the Dogbane Beetle could be found along the northern border, where it could have crossed from New Mexico and Arizona. However, specimens taken so far south, with no intermediate records, lead to the belief that they are adventive species that have been carried in and have become established in this locality.

TYPE LOCALITY: North America.

RECORDED MEXICAN DISTRIBUTION: Not before recorded.

NEW RECORDS FOR MEXICO: *Durango*: Nombre de Dios, August 13, 1947, 5900 feet, 16.

### ***Promecosoma flohri* Jacoby**

*Promecosoma flohri* JACOB, 1890, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, suppl., p. 219, pl. 40, fig. 25.

In a large series of this beetle, from five localities, taken on the expedition there is some slight variation in color, ranging from a dull green to a dull blue. The size also varies from 5 mm. to 8 mm., but most of the individuals are about 6 to 7 mm. long. *Promecosoma flohri* differs from the other species of the genus in being more finely punctured, not rugose, and in having a reddish thorax and the apex of the elytra slightly protruding and finely dentate. It seems to be a species of north central Mexico, for at present it appears to have been taken in only two states, Chihuahua and Durango.

TYPE LOCALITY: Refugio, Durango, Mexico.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Refugio: Durango City; Maravatio.

NEW RECORDS FOR MEXICO: *Chihuahua*: San José Babícora, July 5, 1947, 7100 feet, five; Catarinas, July 25, and 26, 1947, 5800 feet, nine; Charcos, Allende District, July 27, 1947, 6000 feet, one. *Durango*: Las Puentes, July 24, 1947, 7000 feet, 21; Palos Colorados, August 5, 1947, 8000 feet, three.

### ***Promecosoma inflata* Lefevre**

*Promecosoma inflatum* LEFEVRE, 1877, Ann. Soc. Ent. France, ser. 5, vol. 7, p. 132.

The expedition collected five specimens of this interesting species from three localities, but all in the same state and rather close together. It is a species rare in collections and heretofore recorded only from far to the south in the states of Morelos and Guerrero. The specimens taken on the expedition extend the range, but it is likely that the species occurs in favorable spots in the intermediate areas. The general widening of the elytra behind the middle, the finely punctured reddish thorax, infuscated with blackish in front of the scutellum, which is also black, and the coarsely punctured iridescent green-blue elytra will distinguish this species.

TYPE LOCALITY: Cuernavaca, Mexico.

RECORDED MEXICAN DISTRIBUTION: *Morelos*: Cuernavaca; Yautepec. *Guerrero*: Chilpancingo.

NEW RECORDS FOR MEXICO: *Durango*: Encino, July 27, 1947, 6200 feet, one; El Tascate, July 28, 1947, 6400 feet, three; San Juan del Rio, July 30, 1947, 5200 feet, one.

### **Promecosoma lugens** Lefevre

*Promecosoma lugens* LEFEVRE, 1877, Ann. Soc. Ent. France, ser. 5, vol. 7, p. 135.

A large series of this species was collected on the expedition from three localities. Heretofore recorded only from the type locality, Oaxaca, in southern Mexico, the series from the north extends the range of this little known beetle. I have had no opportunity to examine the type and have studied no specimens in other collections. However, the densely and distinctly punctured green or blue-green elytra, black, rugose, and punctured head and thorax, rather long black antennae, and black legs easily differentiate this species from others of the genus. Lefevre describes the abdomen as "rufo-fulvo." However, Jacoby (1880-1892, p. 135) describes the abdomen as black. I find that in general the basal segments are black, with only the terminal ones more or less reddish yellow.

TYPE LOCALITY: Oaxaca, Mexico.

RECORDED MEXICAN DISTRIBUTION: No other Mexican records.

NEW RECORDS FOR MEXICO: *Chihuahua*: San José Babícora, July 5, 1947, 7100 feet, 34; Santa Barbara, Santa Barbara District, July 18, 1947, 7500 feet, 19. *Durango*: Las Puertes, July 24, 1947, 7000 feet, one.

## *Promecosoma viridis* Jacoby

Figure 10

*Promecosoma viride* JACOBY, 1881, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 135, pl. 8, fig. 14.

This pretty *Promecosoma*, one of the smallest of the genus and undoubtedly the commonest, is widely distributed over the northern half of the Mexican highlands. It has never, as far as known, been taken north of the border, although approaching it in several places. In the south it appears not to range below the Guatemala border. The species was taken from a number of localities by the expedition.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Chihuahua*: Santa Clara (A). *Durango*: Ventanas (B) (Höge). *Morelos*: Cuernavaca (C). *Guanajuato*: Guanajuato (D) (Duges collection). *Oaxaca*: Oaxaca (E) (Höge). *Chiapas*: Tapachula (Höge).

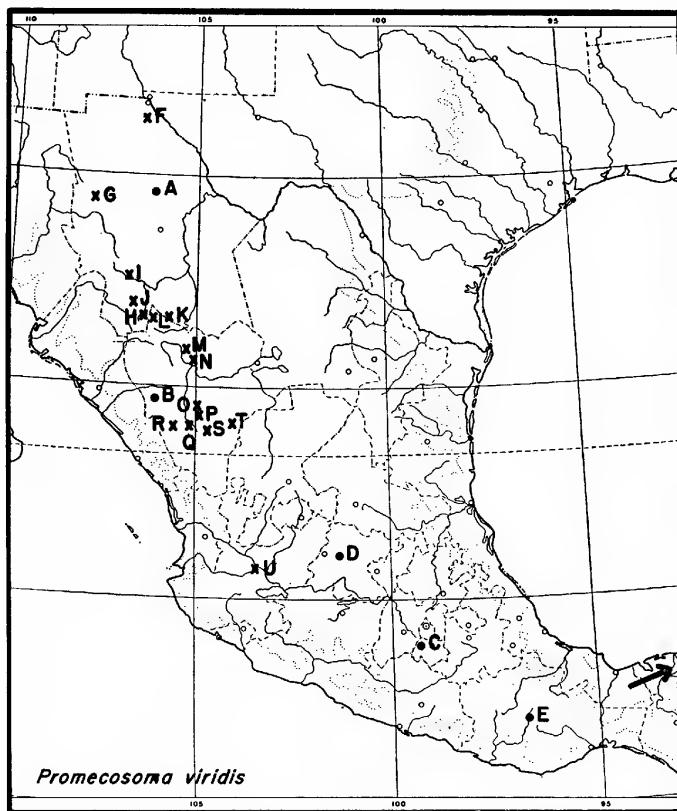


FIG. 10. Distribution of *Promecosoma viridis* Jacoby.



NEW RECORDS FOR MEXICO: *Chihuahua*: Two hundred and thirty-nine kilometers south of Ciudad Juarez (F), July 1, 1947, six; 2 miles west of Matachic (G), July 7, 1947, two; Santa Barbara (H), July 18, 1947, six; Valle de Olivos (I), July 20, 1947, 5500 feet, two; 11 miles east of Huejotitlan (J), July 21, 1947, 5900 feet, five; Catarinas (K), July 25, 1947, 5800 feet, two; Charcos, Allende District, July 27, 1947, 6000 feet, two. *Durango*: Las Puentes (L), July 24, 1947, 7500 feet, five; Encino (M), July 27, 1947, 6200 feet, three; El Tascate (N), July 28, 1947, 6400 feet, six; San Juan del Rio (O), July 30, 1947, 5200 feet, two; San Lucas (P), August 2, 1947, 6700 feet, 11; Palos Colorados (Q), August 5, 1947, 8000 feet, one; Otinapa (R), August 11, 1947, 7500 feet, three; Durango (S), August 14, 1947, 6200 feet, 11; Villa Madero (T), August 18, 1947, 6700 feet, one. *Jalisco*: Guadalajara (U), June–July, 1903 (J. F. McClendon), 51. *Chihuahua*: Kilometer 36, Santa Barbara (H), August 17, 1947, 6900 feet (G. M. Bradt), 16.

### ***Promecosoma sanguinolenta* Lefevre**

*Promecosoma sanguinolenta* LEFEVRE, 1877, Ann. Soc. Ent. France, ser. 5, vol. 7, p. 130.

There were no specimens of this striking species collected in any of the four districts of northern Mexico visited by the Rockefeller expedition. However, a large series was taken in Jalisco District by Mr. G. M. Bradt, working in connection with the expedition. I am therefore including this species in this paper. From our present knowledge of its distribution *P. sanguinolenta* seems to be restricted to the southwestern region on the Pacific slope.

This species is different from many of the known *Promecosoma*, with its distinct iridescent blue-green color restricted to a broad median stripe on each elytra. The head, thorax, margin, and suture of the elytrae are orange-red. The sutural stripe is broadened laterally in front of the middle, but never divides the median green stripe. Legs and abdomen blackish. It is sometimes confused with *Promecosoma sallei* Lefevre but can be easily recognized by the reddish thorax and coarser punctuation of the thorax. The elytral rugosities are more strongly marked.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Guerrero*: Mescala; Iguala. *Morelos*: Yautepec. *Puebla*: Cholula.

NEW RECORDS FOR MEXICO: *Jalisco*: Nine miles east of Guadalajara, June 16, 1949, 5200 feet (G. M. Bradt), 50; Guadalajara, June-July, 1903 (J. F. McClendon), 52.

### ***Colaspis hypochlora* Lefevre**

*Colaspis hypochlora* LEFEVRE, 1878, Mitth. Münchener Ent. Ver., vol. 2, p. 123.

A common and widespread species throughout Central America from Mexico to Colombia. As far as known it has not been taken in the United States, where it is replaced by *Colaspis brunnea* Fabricius, which it resembles but from which it can be distinguished by having a metallic green under side. The dark green under side and smaller size also separate it from *Colaspis championi* Jacoby which ranges from Arizona to Guatemala. *Colaspis hypochlora* seems to be rare in northern Mexico, for the two specimens secured extend the range much farther to the north than previous records.

TYPE LOCALITY: Colombia.

RECORDED MEXICAN DISTRIBUTION: *Morelos*: Yautepec; Cuernavaca. *Guanajuato*: Guanajuato. *Puebla*: Puelba. *Colima*: Colima City. *Oaxaca*: Juquila. *Guerrero*: Chilpancingo; Amula; Xucumanatlan. *Veracruz*: Jalapa; Cordova; Tuxtla. *Chiapas*: Tapachula. *Yucatan*: Temax.

Also British Honduras: Rio Hondo; Rio Sarstoon. Guatemala: Zapote; Duenas; Panzoz; San Geronimo. Nicaragua: Chontales. Costa Rica: Volcan de Irazu; Cache. Panama: Volcan de Chiriqui, 2000-3000 feet; Bugaba; Caldera; David; Colon. Colombia.

NEW RECORDS FOR MEXICO: *Chihuahua*: Delicias, July 13, 1947, one. *Coahuila*: Guadalupe, August 23, 1947. *Morelos*: Cuernavaca, April 15, 1946 (J. and D. Pallister), one. *Distrito Federal*: San Angel, July 10, 1946 (J. and D. Pallister), four. *Veracruz*: Cordoba, May 15, 1946 (J. and D. Pallister), 26.

### ***Xanthonia vagans* (LeConte)**

*Trichotheca vagans* LECONTE, 1885, Trans. Amer. Ent. Soc., vol. 12, p. 26.

Previously recorded from Utah, Texas, and Arizona. One specimen of this species was taken in the state of Durango. Undoubtedly specimens from intermediate localities will eventually be discovered. It might be confused with *X. villosula* Melsh, which ranges over a large part of the United States and south into Ari-

zona, except *X. vagans* LeConte is somewhat larger, more closely and irregularly punctured, darker red, and has traces of black maculation of the elytra.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: Not previously recorded.

NEW RECORDS FOR MEXICO: *Durango*: Six miles northeast of El Salto, Durango District, August 10, 1947, 8500 feet, one.

### ***Xanthonia guatemalensis* Jacoby**

*Xanthonia guatemalensis* JACOBY, 1882, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 164, pl. 7, fig. 20.

The two specimens from the states of Chihuahua and Durango extend the range of this species far to the north of its recorded distribution. Known previously from southern Mexico south into Guatemala, undoubtedly more intensive collecting throughout central and northern Mexico will reveal intermediate localities.

TYPE LOCALITY: Jalapa, Mexico.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Jalapa.

NEW RECORDS FOR MEXICO: *Chihuahua*: Two miles west of Matachic, July 7, 1947, 6400 feet, one. *Durango*: Encino, July 27, 1947, 6200 feet, one.

### **SUBFAMILY CHRYSOMELINAE**

The Chrysomelinae range in size from small to rather large, round or oval, convex, usually brightly colored beetles. They differ from most other chrysomelids in having the third joint of the tarsi entire instead of distinctly bilobed. Head inserted into the thorax to the eyes, not too visible from above, eyes feebly emarginate, antennae moderately long, outer joints somewhat enlarged, widely separated at base; thorax usually broad and somewhat convex, side margins well defined, frequently emarginate in front; elytra convex, covering the abdomen, epipleura well defined; front coxae transverse, widely separated.

The larvae are usually stout, frequently quite convex, and usually feed exposed, sometimes associated with the adults. Some of the species are gregarious, for many of them are protected with exudating secretions which are strong-smelling and caustic in reaction.

Because of their generally large size and bright colors, the species of this subfamily have long been a favorite with collectors.

Since many show considerable variation in color and color pattern, the catalogs are filled with names of which many are synonyms, aberrations, or color varieties. There are, however, many authentic subspecies.

The Chrysomelinae are one of the larger subfamilies, represented in the world by about 2000 species. Nearly half of these come from the rich tropical regions of South and Central America. Only about 100 occur in the area north of Mexico. Eighteen species and two new species were taken on the expedition.

### *Zygogramma signatipennis* (Stål)

Figure 11

*Calligrapha signatipennis* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., Stockholm, vol. 15, p. 321.

A common and widely distributed species extending from southern Arizona south through Mexico into British Honduras and Costa Rica. It apparently does not reach Panama, nor are there any records at present from Nicaragua, although it undoubtedly does occur there. *Zygogramma signatipennis* Stål is frequently confused in collections with *Z. piceicollis* Stål, differing, however, from the latter in the dark blue instead of reddish thorax and elytral markings. The stripe from the umbone extends backward to meet and coalesce broadly with the sutural stripe at the middle. A large series from several localities were taken in northern Mexico, and an assortment of specimens from various other locations is in the collections of the American Museum of Natural History.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Oaxaca*: (A). *Veracruz*: Cordova (B); Orizaba (C); Jalapa (D). *Guanajuato*: Guanajuato (E). *San Luis Potosí*: San Luis Potosí (F). Coscomatepec (not located). Yolos (not located).

Also British Honduras: River Sarstoon. Guatemala: San Geronimo; Capetillo. Costa Rica.

NEW RECORDS FOR MEXICO: *Chihuahua*: Matachic (G), July 7, 1947, three; Parral (H), July 16, 1947, 5500 feet, two; Santa Barbara (I), Santa Barbara District, July 18, 1947, 7500 feet, 20; Catarinas (J), July 26, 1947, 5800 feet, 32; Santa Barbara (I), August 17, 1947, 6200 feet (G. M. Bradt), three. *Durango*: Encino (K), July 27, 1947, 6200 feet, eight; San Lucas (L), August 2, 1947, 6700 feet, one; Yerbánis (M), Cuencame District, August 19,

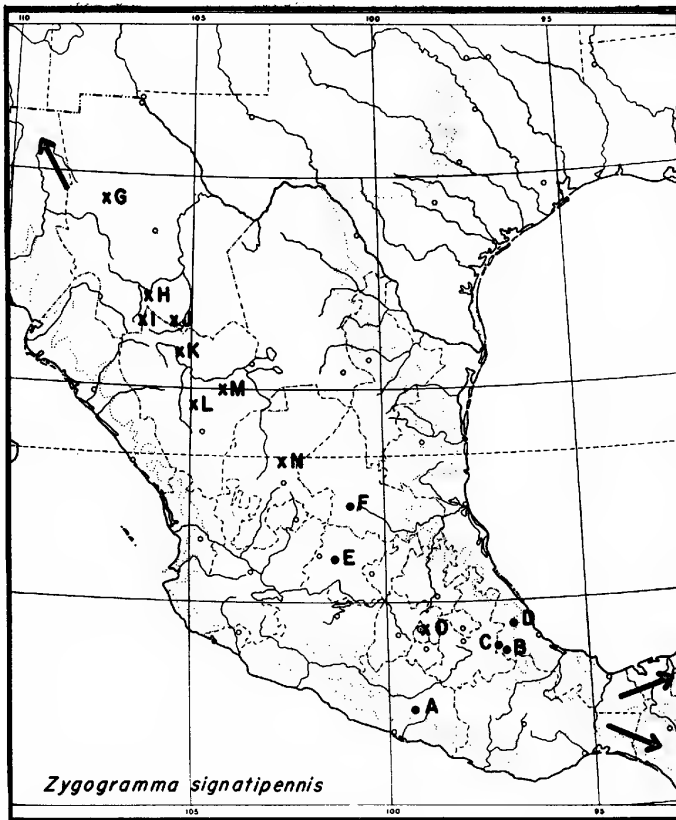


FIG. 11. Distribution of *Zygogramma signatipennis* (Stål).

1947, 6700 feet, three. *Zacatecas*: Fresnillo (N), August 15, 1947, 7000 feet, one. *Distrito Federal*: San Jeronimo (O), July 1, 1946 (J. and D. Pallister), 11.

Also Guatemala: Guatemala City, June 15, 1947, 5000 feet (C. and P. Vaurie), 14; Zacapa, July 20, 1947 (C. and P. Vaurie), 1; Amatitlan, August 24, 1947, 4000 feet (C. and P. Vaurie), 12.

### ***Zygogramma piceicollis* (Stål)**

Figure 12

*Calligrapha piceicollis* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., Stockholm, vol. 15, p. 322.

Like *Z. signatipennis* Stål, this is a common and widely distributed species and is found throughout virtually the same area. In the United States, however, it is recorded also from Texas as well as Arizona. A fair series was obtained on the expedition.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Sonora*: Northern Sonora (A). *San Luis Potosí*: San Luis Potosí (B). *Aguascalientes*: Ciudad (C). *Morelos*: Yautepec (D); Cuernavaca (E). *Oaxaca*: Capulalpam (F); Oaxaca (G). *Jalisco*: Guadalajara (H). *Guerrero*: Chilpancingo (I). *Puebla*: Cholula (J). *Veracruz*: Orizaba (K). Las Vegas (not located).

Also Guatemala: Volcan de Agua; Capetillo; Duenas; San Geronimo. Costa Rica.

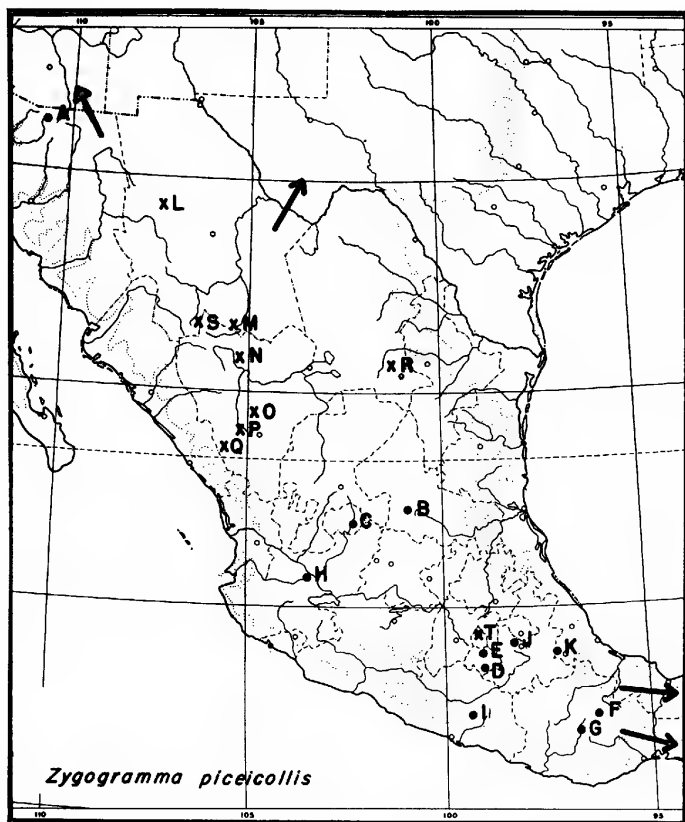


FIG. 12. Distribution of *Zygogramma piceicollis* (Stål).

NEW RECORDS FOR MEXICO: *Chihuahua*: Matachic (L), July 7, 1947, seven; Catarinas (M), July 26, 1947, 5800 feet, two; Santa Barbara (S), August 17, 1947, 6200 feet (G. M. Bradt), seven. *Durango*: Encino (N), July 27, 1947, 6200 feet, seven; San Lucas (O), August 2, 1947, 6700 feet, one; Ocampo (O), August 2, 1947, two; Palos Colorados (P), August 5, 1947, 10; 6 miles northeast of El Salto (Q), Durango District, August 10, 1947, 8500 feet, two.

*Coahuila*: Guadalupe (R), August 23, 1947, one. *Distrito Federal*: Contreras (T), May 30, 1946 (J. and D. Pallister), one; San Jeronimo (T), June 21, 1946 (J. and D. Pallister), two; San Jeronimo (T), July 1, 1946 (J. and D. Pallister), eight.

### ***Zygogramma durangoensis* Jacoby**

*Zygogramma durangoensis* JACOB, 1891, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, suppl., p. 250, pl. 41, fig. 8.

Recorded previously from only the type locality. The material secured on the expedition extends the distribution of this apparently rather rare species. Jacoby knew it only as "several specimens" on which he based his description.

TYPE LOCALITY: Ventanas, Durango, Mexico.

RECORDED MEXICAN DISTRIBUTION: Same as type locality.

NEW RECORDS FOR MEXICO: *Chihuahua*: Catarinas, July 26, 1947, 5800 feet, six. *Durango*: Encino, July 27, 1947, 6200 feet, one; San Lucas, August 2, 1947, 6700 feet, one.

### ***Zygogramma malvae* (Stål)**

*Calligrapha malvae* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., Stockholm, vol. 15, p. 322.

This distinctive and widely distributed species ranges from Texas and Arizona south throughout northern Mexico to a little south of Mexico City. As far as known, it does not quite reach the Isthmus of Tehuantepec. A fairly large series were secured by the expedition from five localities. In this series there is some variation, particularly in the size and density of the punctures of the pronotum and elytra. In a few also the pronotum and markings of the elytra are fulvous or piceous instead of greenish black.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Sonora*: Northern Sonora. *Chihuahua*: Pinos Altos; Chihuahua City; Santa Clara. *Durango*: Ventanas; Villa Lerdo. *Guanajuato*: Irapuato; Guanajuato. *Michoacan*: Tacambaro. *Distrito Federal*: Mexico City. *Guerrero*: Amula.

NEW RECORDS FOR MEXICO: *Chihuahua*: Madera, July 6, 1947, 7200 feet, 11; Matachic, July 17, 1947, three; Santa Barbara, Santa Barbara District, July 18, 1947, 7500 feet, one; Catarinas, July 26, 1947, 5800 feet, 42; Kilometer 36, Santa Barbara-Ojito, August 17, 1947, 6900 feet (G. M. Bradt), four. *Durango*: Nombre de Dios, August 13, 1947, 5900 feet, one.



***Zygogramma tortuosa* (Rogers)**

Figure 13

*Chrysomela tortuosa* ROGERS, 1856, Proc. Acad. Nat. Sci. Philadelphia, vol. 8, p. 32, pl. 1, fig. 5.

Previously recorded only from Texas, New Mexico, and Arizona, *Z. tortuosa* undoubtedly occurs in various places throughout northern Mexico. It does not appear to be very common, however, for only 14 specimens were taken by the expedition. These came from six localities. Five of these places were rather closely centered in an area on the border of the states of Chihuahua and Durango. A single specimen was taken in the state of Coahuila near the Texas border (see fig. 13). Although very similar in pattern to *Z. malvae* Stål, it can usually be recognized by the generally less shining appearance, but especially by the ferruginous instead of greenish black pronotum, under side, and legs; pronotum less distinctly punctured, except along the sides; and the recurved hook of the humeral vittae is much larger and more irregular, sometimes separated as a curved spot.

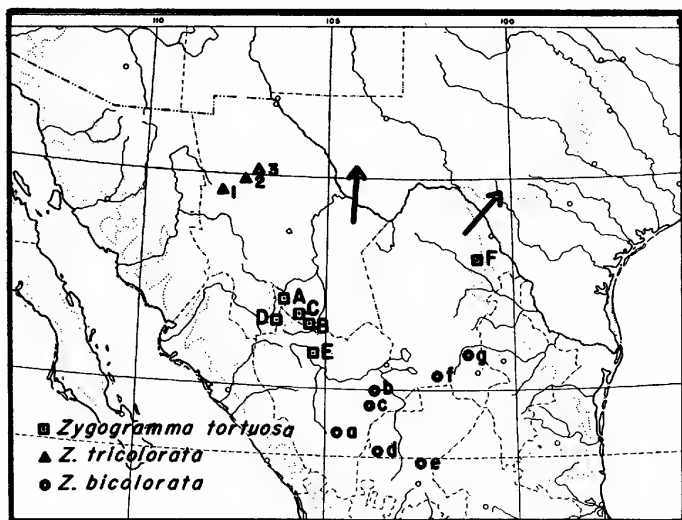


FIG. 13. Distribution of *Zygogramma tortuosa* (Rogers), *Z. tricolorata*, new species, and *Z. bicolorata*, new species.

TYPE LOCALITY: San Antonio, Texas.

RECORDED MEXICAN DISTRIBUTION: Not previously recorded.

NEW RECORDS FOR MEXICO: *Chihuahua*: Parral (A), July 16, 1947, three; Catarinas (B), July 26, 1947, 5800 feet, five; Kilo-

meter 36, Santa Barbara-Ojito (C), August 17, 1947, 6900 feet (G. M. Bradt), two; Santa Barbara (D), August 17, 1947, 6200 feet (G. M. Bradt), two. *Durango*: Encino (E), July 27, 1947, 6200 feet, one. *Coahuila*: One hundred and ninety-two kilometers south of Piedras Negras (F), August 25, 1949, 1300 feet (G. M. Bradt), one.

***Zygogramma bicolorata*, new species**

Figure 13

Ovate, convex, shining, head ferruginous; pronotum, base, and center ferruginous, apical angles yellow; elytra yellow, with ferruginous suture, subsutural, humeral, subhumeral vittae, and usually four spots ferruginous or piceous.

MALE: Head one-half broader than long, ferruginous, piceous between eyes and base, coarsely punctured, more coarsely and densely near eyes, surface finely rugulose, traces of a fine median line, clypeal suture distinct, separating the broadly triangular clypeus, which is distinctly punctured, labrum with scattered whitish cilia, eyes elliptical, twice as long as wide, antennae ferruginous, five terminal segments suddenly expanded, darker. Pronotum yellow, base ferruginous, reaching the basal angles and expanding in the middle to reach or nearly reach the apical margin, sometimes enclosing two small yellow spots, one on each side of the middle, lateral and apical margin finely lined with ferruginous; twice as wide as long, apical margin straight, finely ciliated, appearing deeply emarginate because of the prolonged apical angles, side margins and base broadly rounded, hind angles obtuse; irregularly punctured more deeply and coarsely at base and sides, surface finely rugulose. Scutellum elongate triangular, rounded at tip, faintly rugulose, black shining. Elytra yellow, faintly shining, with dark ferruginous markings as follows: sutural vitta narrow, reaching from scutellum to apex, subsutural vitta narrow, abbreviated at base and frequently at apex, usually not joining with sutural vitta unless slightly near apex, humeral vitta narrow, curving towards suture but never touching, frequently recurved at apex; subhumeral vitta short, free from humeral at apical half, a subbasal elongate spot between subsutural and humeral vittae, another elongate spot just behind, sometimes touching humeral at side or end, two spots, one very small, near apex, all black areas outlined with deep, rather close-set, large punctures, a few scattered small punctures except for two striate

lines near margin on yellow areas, centers faintly ferruginous. Epipleura yellow, entire inner margin narrowly lined with ferruginous. Under side and legs dark ferruginous or black, coarsely and irregularly punctured. Length, 5.5 to 7 mm.

FEMALE: Similar to male.

TYPE MATERIAL: Holotype, male, Durango (a), Durango, Mexico, August 14, 1947, 6200 feet; allotype, female, same data as holotype. Paratypes, Durango (a), Durango, Mexico, August 14, 1947, 6200 feet, three; Pedricena (b), Durango, Mexico, August 19, 1947, 4500 feet, one; Yerbani (c), Cuencame District, Durango, Mexico, August 19, 1947, 6700 feet, one; Arenal (d), Zacatecas, Mexico, August 14, 1947, one; Fresnillo (e), Zacatecas, Mexico, August 15, 1947, two; Paila (f), Coahuila, Mexico, August 21, 1947, 3900 feet, one; Guadalupe (g), Coahuila, Mexico, August 23, 1947.

The 14 specimens taken by the expedition came from seven localities rather widely separated, but in an area where the three states of Durango, Zacatecas, and Coahuila join. This species resembles *Z. tortuosa* Rogers very closely in the same general pattern of the markings of the elytra but can be recognized by the finer lines and dots which give it a brighter appearance. That the pronotum is bicolored instead of being wholly ferruginous is a much more significant character. Since there appears to be no intergradation with *tortuosa*, I am establishing this as a distinct species, although I regard it as a light-colored offshoot of *tortuosa* to the south, and *Z. tricolorata* is a very dark offshoot of *tortuosa* to the north.

### ***Zygogramma tricolorata*, new species**

Figure 13

Ovate, convex, nearly opaque; head and pronotum more shining; head ferruginous, piceous at base; pronotum orange-yellow anteriorly, ferruginous in middle, piceous at base; elytra yellow, extremely limited in area by the broad black vittae.

MALE: Head one-half broader than long, ferruginous, except for vertex between the eyes to base, greenish, piceous, coarsely and deeply punctured, more densely around the eyes, intervals finely and irregular rugulose, a fine but distinct median line, clypeus triangular, narrower than head, separated from epicranium by a distinct clypeal suture, labrum with scattered whitish cilia,

eyes elliptical, twice as long as wide, antennae ferruginous, five terminal segments suddenly expanded and darker. Pronotum orange-yellow along most of sides, apical margin, and angles, ferruginous across middle, narrower at side margins, widest in middle, with a trace of faint orange spots on each side of center; greenish black band along base; twice as broad as long, apical margin finely margined and ciliated, straight except for the angles which are strongly produced, making it appear deeply emarginate; side margins and base broadly rounded; hind angles obtuse; coarsely and deeply punctured, more closely at base and side margins, surface finely rugulose, a faint median line. Scutellum elongate, triangular, rounded at tip, rugulose, black, shining. Elytra opaque, yellow, a broad sutural vitta reaching scutellum and apex, a subsutural vitta not quite reaching base, coalescing nearly always with sutural vittae for entire length to apex; a broad humeral vitta widening beyond middle, frequently enclosing small round yellow spot; subhumeral vitta reaching middle and usually coalescing with humeral for entire length; a large spot near base frequently joining expanded middle of humeral vitta; two small spots near apical margin sometimes joined with humeral black area. All black areas deeply and coarsely punctured and outlined, with punctures usually overspreading these limiting lines. Yellow areas irregularly, except for two striate lines near lateral margin, punctured with somewhat finer punctures. Epipleurae faintly black in center, yellow except for a fine ferruginous line along margin. Under side shining greenish black, except for fine ferruginous line on margin of each abdominal segment, distinct scattered punctures, legs ferruginous, claws darker, distinct scattered punctures. Length, 6-7 mm.

FEMALE: Similar to male.

TYPE MATERIAL: Holotype, male, San José Babícora (2), Chihuahua, Mexico, July 5, 1947, 7100 feet; allotype, female, same data as holotype (2). Paratypes, San José Babícora (2), Chihuahua, Mexico, 25; summit, northeast of San José Babícora (3), Chihuahua, Mexico, July 4, 1947, 7700 feet, four; Madera (1), Chihuahua, Mexico, July 6, 1947, two.

The 33 specimens taken by the expedition came from three spots all closely centered in a small area near the middle of the state of Chihuahua (see fig. 13). They are similar to *Z. tortuosa* Rogers in the style of pattern in the markings of the elytra. The darker areas, however, are broader and overspread the outlining

punctures so that the species is readily recognized by its generally darker appearance. In addition, the elytra are opaque instead of somewhat shining, and the pronotum is tricolored instead of ferruginous. Although closely related to *Z. tortuosa*, I consider this beetle distinctive enough to be a good species. Nothing is known of its food plants.

***Zygogramma continua fasciatipennis* Jacoby**

*Zygogramma continua* LeCONTE, 1868, Trans. Amer. Ent. Soc., vol. 2, p. 57.

*Zygogramma fasciatipennis* JACOBY, 1891, Biologia Centrali-Americana, vol. 6, pt. 1, suppl., p. 249, pl. 41, fig. 6.

A fairly large series (146 specimens) of this interesting beetle was taken on the expedition. They come from three localities in the state of Chihuahua and three localities in the state of Durango. Jacoby described it as a species, based on specimens collected by Morrison from northern Sonora, Mexico. It was later placed as a synonym of *Z. continua* LeConte (Linell, 1896). Because of the larger amount of material made available by the Rockefeller Mexican expedition, I am reestablishing Jacoby's name as a subspecies of *continua* LeConte. It differs from typical *continua* in the generally larger size (length, 6.5 to 8.00 mm.; average, 7.5 mm.; breadth, 4 to 5 mm.). In all of 146 specimens examined the elytral vittae are distinctly black or at least piceous, rather than brownish, as are also the epipleurae and the posterior half of the lateral margin. The under side and legs are dark aeneous or black, although Jacoby describes the legs as fulvous. Head varies from fulvous to black in a few specimens. Base of thorax fulvous, in some blackish, which may be limited to a broad band along the base. This band may be concave along the front margin or extended out into the medial area, sometimes reaching the apical margin or limited to two round dots. Head coarsely and irregularly punctured at the sides, more finely in the medial region. Thorax coarsely but distinctly punctured along side and base, nearly impunctate in middle. Elytral stripes margined on both sides with coarsely punctured striae, and irregularly but coarsely punctured in the discal stripes, subsutural joining with the sutural just in front of middle. Interstices slightly convex, sparsely and finely punctate. This distinctive form ranges from the Huachuca Mountains, Arizona, where Schaeffer (1905) recognized it as differing from typical *continua*, south into the northern part of Mexico. *Z. continua* ranges from Arizona and New Mexico north into

Colorado and Utah, but as far as known does not cross into Mexico.

Because of the material collected by the expedition, I am making *Zygogramma thoracica* Jacoby a synonym of this subspecies. Jacoby (1888–1892, p. 252, pl. 41, fig. 12) described this species from a single specimen from Durango City, Mexico. I have not seen his type, but can find no valid characters in his description that might not apply to some of the specimens that I am placing under this subspecies.

TYPE LOCALITY: Northern Sonora.

RECORDED MEXICAN DISTRIBUTION: Same as type. Also Huachuca Mountains, Arizona (Schaeffer).

NEW RECORDS FOR MEXICO: *Chihuahua*: Summit, northeast of San José Babícora, July 4, 1947, 7700 feet, 15; San José Babícora, July 5, 1947, 7100 feet, 38; Madera, July 6, 1947, 7200 feet, 83. *Durango*: Palos Colorados, August 5, 1947, 8000 feet, six; Coyotes, Durango District, August 8, 1947, 8300 feet, two; 6 miles northeast of El Salto, August 10, 1947, 8500 feet, two.

### ***Calligrapha diversa* (Stål)**

Figure 14

*Chrysomela diversa* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., Stockholm, vol. 15, p. 324.

The five localities represented by the seven specimens taken on the expedition extend the range of this species far to the north of its heretofore known distribution. Although recorded from widely distributed localities throughout Central America, it appears to be rather localized and nowhere abundant. Jacoby mentions that the sutural green stripe in the type is split below the base into a thin branch, pointing outward; in the Guatemalan specimens, with a single exception, the green stripe is not split, but extends nearly to the base. In the seven specimens from the expedition, I find that in one from San Juan del Rio, and in the one from San Lucas the green stripe continues solid to nearly the base. This, however, is not a valid specific character, as the rest of the markings also vary to some slight degree. All specimens that I have seen agree in having no spot that reaches the lateral margin.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Jalapa (A). *Morelos*: Cuernavaca (B). *Guanajuato*: Guanajuato (C). *Oaxaca*:

Etla (D); Juquila (E); Oaxaca (F). *Puebla*: Atlixco (G). *Michoacan*: Morelia (H). *Hidalgo*: Tula (I). *Distrito Federal*: Mexico City (J). *Tabasco*: Teapa (K). *Guerrero*: Tepetlapa (L); Amula (L); Chilpancingo (M); Xucumanatlan; Soledad.

Also Guatemala: Duenas; Zapote; Capetillo; Purula. Nicaragua: Chontales. Costa Rica.

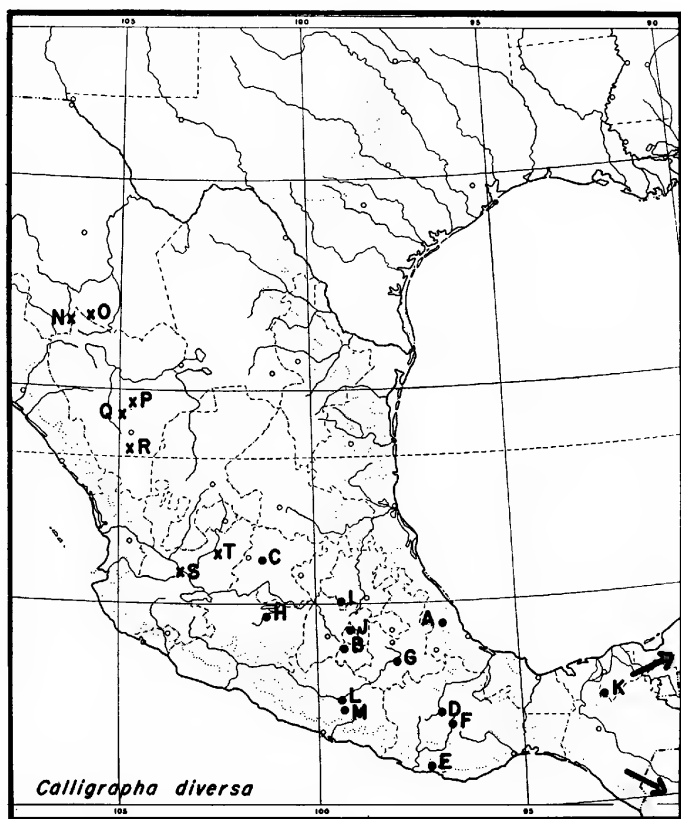


FIG. 14. Distribution of *Calligrapha diversa* (Stål).

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Barbara, Santa Barbara District (N), July 18, 1947, 7500 feet, one; Catarinas (O), July 25, 1947, 5800 feet, one. *Durango*: San Juan del Rio (P), July 30, 1947, 5200 feet, two; San Lucas (Q), August 2, 1947, 6700 feet, one; Nombre de Dios (R), August 13, 1947, 5900 feet, two. *Jalisco*: Nine miles east of Guadalajara (S), June 16, 1949, 5200 feet (G. M. Bradt), one; vicinity of Pegueros (T), June 16, 1949, 6700 feet (G. M. Bradt), one.



### **Calligrapha serpentina (Rogers)**

*Chrysomela serpentina* ROGERS, 1857, Proc. Acad. Nat. Sci. Philadelphia, vol. 8, p. 32, pl. 1, fig. 3.

This rather common and widely distributed species is known from Texas, New Mexico, and Arizona south into Mexico, Central America, and Venezuela. It is among the larger of the species of *Calligrapha*, measuring 10 to 12 mm. and easily recognized by the heavy, shiny, blue-green markings on the yellow or fulvous elytra. The winding or S-shaped stripe along the suture is very distinctive. The head, thorax, legs, and under side are also blue-green. A fair series from several localities were obtained on the expedition.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: *Sonora*: Northern Sonora. *Chihuahua*: Paso del Norte; Chihuahua City. *Durango*: Villa Lerdo; Ventanas. *Veracruz*: Tuxtla. *Guanajuato*: Guanajuato. *Queretaro*: Queretaro. *Guerrero*: Iguala. *Yucatan*: Temax.

Also Nicaragua: Chontales. Venezuela.

NEW RECORDS FOR MEXICO: *Chihuahua*: Delicias, July 11, 1947, 4150 feet, 18; Delicias, July 13, 1947, 12; 10 miles south of Las Delicias, July 13, 1947, one; 42 miles southwest of Camargo, July 15, 1947, 4900 feet, one; Parral, July 17, 1947, 5500 feet, one; Catarinas, July 26, 1947, 5800 feet, seven; Kilometer 36, Santa Barbara-Ojito, August 17, 1947, 6900 feet (G. M. Bradt), 12. *Durango*: San Juan del Rio, July 30, 1947, 5200 feet, one; San Lucas, August 2, 1947, 6700 feet, two; Nombre de Dios, August 13, 1947, 5900 feet, four; Pedricena, August 19, 1947, 4500 feet, eight; Yerbanis, Cuencame District, August 19, 1947, 6700 feet, one. *Distrito Federal*: San Jeronimo, April 11, 1946 (J. and D. Pallister), one.

### **Calligrapha dislocata (Rogers)**

*Chrysomela dislocata* ROGERS, 1856, Proc. Acad. Nat. Sci. Philadelphia, vol. 8, p. 32, pl. 1, fig. 4.

Ranging from Texas and Arizona southward into central Mexico this species seems to be locally common throughout its rather extensive territory. A fair series of 81 specimens from four localities was secured on the expedition from northern Mexico. The series shows some slight variation in the width of the greenish black lines and in the length to which they extend. In some speci-

mens the humeral stripe does not meet the median subsutural stripe. In others it coalesces at the center to turn outward again at the posterior end. These latter specimens appear superficially to be considerably darker and are therefore frequently considered to be varieties or distinct species. The pronotum is uniformly greenish or bluish black.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: *Coahuila*: Saltillo. *Durango*: Villa Lerdo. *Hidalgo*: Pachuca. *Distrito Federal*: Mexico City. *Puebla*: Puebla.

NEW RECORDS FOR MEXICO: *Chihuahua*: San José Babícora, July 5, 1947, 74; Delicias, July 11, 1947, 4150 feet, two; Catariñas, July 26, 1947, 5800 feet, four. *Durango*: Yerbanis, Cuencame District, August 19, 1947, 6700 feet, one. *Chihuahua*: Kilometer 36, Santa Barbara-Ojito, August 17, 1947, 6900 feet (G. M. Bradt), four.

### ***Calligrapha wickhami* Bowditch**

*Calligrapha wickhami* BOWDITCH, 1911, Trans. Amer. Ent. Soc., vol. 37, p. 325.

One of the most striking species of the genus. Recorded previously only from Texas, the two specimens taken on the expedition broaden the known range of this insect. It is remarkably rare in collections, which seems strange, since a species so brightly colored and so differently marked should not have been overlooked unless it is also equally rare in the field. In the specimens examined the two from Mexico are brighter than those from Texas.

TYPE LOCALITY: Alpine, Texas.

RECORDED MEXICAN DISTRIBUTION: Not previously recorded.

NEW RECORDS FOR MEXICO: *Durango*: Encino, July 27, 1947, 6200 feet, two.

### ***Calligrapha suboculata* Stål**

*Calligrapha suboculata* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., Stockholm, vol. 15, p. 325.

Six specimens were taken at one locality. This species is very similar to *C. notatipennis* Stål, but the spot at the middle of the elytral margin is always present no matter how varied the other markings frequently become. Also the broad oblique humeral stripe is generally attached to the sutural stripe at the middle of

the elytra. In *C. notatipennis* this sutural stripe is placed behind the middle, and the anterior part is free and curving away from the suture. In the six specimens collected by the expedition, the yellow, which in typical specimens shows clear and bright, is stained dark and almost reddish in color. Submersion in carbon tetrachloride did not alter the coloring. Previously recorded only from southeastern Mexico and southward, the six specimens from the state of Durango extend the distribution of this insect far to the north.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Cordova; Orizaba; Jalapa; Atoyac; Toxpan; Cerro de Plumas (not located). *Chiapas*: Tapachula.

Also Guatemala: Cerro Zunil. Panama: Bugaba.

NEW RECORDS FOR MEXICO: *Durango*: Nombre de Dios, August 13, 1947, 5900 feet, six.

### ***Leptinotarsa decemlineata* (Say)**

*Doryphora decemlineata* SAY, 1824, Jour. Acad. Nat. Sci. Philadelphia, vol. 3, p. 453.

This is the common Colorado Potato Beetle which started its career in the southeastern part of Colorado, moved eastward until it reached the Atlantic Ocean, spread north into Canada and south to the Gulf, and now has even invaded Europe. In the southern part of its range it seems not to thrive, for here it runs into competition with several closely allied species, with which it is so easily confused that I am inclined to doubt some of the early records for it from southern Mexico and Costa Rica. Tower was also of this opinion and even went so far as to say that he "is convinced that it is strictly confined to the United States." It undoubtedly, however, can be found throughout northern Mexico.

TYPE LOCALITY: Missouri, Arkansas.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Misantla. *Mexico*: Toluca. Cerro de Plumas (not located). La Parada (not located). *Coahuila*: Monoclava. *Chihuahua*: Chihuahua. *Durango*: Ventanas; Durango. *Jalisco*: Guadalajara. *Puebla*: Matamoros Izucar. *Morelos*: Cuernavaca. *Michoacan*: Tacambaro. *Guerrero*: Zopilote. *Distrito Federal*: Mexico City.

Also Costa Rica.

NEW RECORDS FOR MEXICO: *Chihuahua*: Madera, July 6, 1947, 7200 feet, one; Catarinas, July 25, 1947, 5800 feet, one;

Kilometer 36, Santa Barbara-Ojito; August 17, 1947, one. *Durango*: El Tascate, July 28, 1947, 6400 feet, one; Palos Colorados, August 5, 1947, 8000 feet, one; Otinapa, August 7, 1947, 7500 feet, two; Otinapa, August 11, 1947, 8200 feet, four; Durango, August 14, 1947, 6200 feet, one.

### ***Leptinotarsa undecimlineata* (Stål)**

*Myocoryna undecimlineata* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., Stockholm, vol. 15, p. 316.

The range of this species begins where that of *L. decemlineata* ends, for it extends from northern Mexico south through the Central American countries where it is plentiful into Colombia and Venezuela. It is frequently confused with the Colorado Potato Beetle but can readily be distinguished by the totally blackish green under side, legs, and elytral epipleurae. No specimens of this insect were taken on the expedition, but it was thought advisable to record some of the Mexican localities on the material in the collections of the American Museum of Natural History.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Guanajuato*: Guanajuato. *Veracruz*: Orizaba; Veracruz; Tuxtla; Cordova; Misantla. *Oaxaca*: Oaxaca. Cerro de Plumas (not located).

Also British Honduras: River Sarstoon. Guatemala: Cubilguitz; El Reposo; San Geronimo; Purula; Tamahu; Duenas; Capetillo. Nicaragua: Chontales. Costa Rica: Volcan de Irazu. Colombia. Bolivia.

NEW RECORDS FOR MEXICO: *Sinaloa*: Mazatlan, two. *Distrito Federal*: Guadalupe, July 29, 1903 (W. L. Tower), one. *Veracruz*: Jalapa, seven; Cordoba, one; Tezonapa, September, 1905 (W. L. Tower), 14; Cordoba, May 16, 1946 (J. and D. Pallister), two; Jalapa, May 20, 1946 (J. and D. Pallister), one. *Guerrero*: Iguala, June 2, 1946 (J. and D. Pallister), one.

Also Guatemala: Yepocapa, March-April, 1945 (H. Elishewitz), one; Antigua, August 16, 1947, 5000 feet (C and P. Vaurie), five; Reunion, August 22, 1947, 4000 feet (C. and P. Vaurie), three; Duenas, August 18, 1947, 4500 feet (C. and P. Vaurie), two; Cunen, August 11, 1947, 6000 feet (C. and P. Vaurie), five. Honduras: Tegucigalpa, September 16, 1918 (F. J. Dyer), three. Costa Rica: Holanda, July 1, 1930, 1200 meters, four; Pacayas (C. Werckele), three. Colombia: Cali, May 20, 1948, 500 meters

(L. Richter), four; Cali District, Cauca Valley, January 30–February 18, 1935, 3260 feet (Herbert F. Schwarz), 21.

***Leptinotarsa multitaeniata melanothorax* (Stål)**

*Myocoryna melanothorax* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., Stockholm, vol. 15, p. 317.

The *Myocoryna melanothorax* was described by Stål as a distinct species and was so considered by Jacoby, but it is now generally thought to be a subspecies of *multitaeniata* Stål. Some workers consider it to be synonymous. Considerable confusion persists, and the exact relationship of this form can be determined only with the acquisition of an extensive series and a careful study of breeding habits. I am placing it tentatively as a subspecies of *multitaeniata*. It is a beetle of the Mexican plateau, ranging from southern Texas and Arizona south into southern Mexico. There were 103 specimens taken on the expedition, from five locations, all in the state of Durango.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Puebla*: Puebla. *Mexico*: Toluca. *Guanajuata*: Guanajuata. *Coahuila*: Monclova. *Durango*: Durango Ciudad. *Michoacan*: Morelia. *Distrito Federal*: Mexico City.

NEW RECORDS FOR MEXICO: *Durango*: Palos Colorados, August 5, 1947, 8000 feet, 55; Coyotes, Durango District, August 8, 1947, 8300 feet, 18; Otinapa, August 7, 1947, 7500 feet, three; Otinapa, August 11, 1947, 8200 feet, 12; 6 miles northeast of El Salto, Durango District, August 10, 1947, 8500 feet, 15.

***Leptinotarsa lineolata* (Stål)**

*Chrysomela lineolata* STÅL, 1862, Nova Acta K. Vetensk. Soc. Upsala, ser. 3, vol. 4, p. 159.

A large series of 308 specimens of this insect was taken in Mexico from six localities, all from the state of Chihuahua. Jacoby records it as numerous, but from only three localities. Its known range is limited to a small area in the extreme northern part of the Mexican plateau from southern Texas, New Mexico, and Arizona across the border into northern Mexico.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: *Sonora*: Northern Sonora. *Chihuahua*: Chihuahua City; Pinos Altos.

NEW RECORDS FOR MEXICO: *Chihuahua*: Sixteen miles southeast of Chihuahua, July 11, 1947, six; Delicias, July 11, 1947, 47; Delicias, July 13, 1947, three; La Cruz, July 13, 1947, 21; 20 miles southwest of Camargo, July 13, 1947, 4500 feet, 110; 25 miles southwest of Camargo, July 14, 1947, 120; Catarinas, July 26, 1947, 5800 feet, one.

### ***Leptinotarsa defecta* (Stål)**

*Myocoryna defecta* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., Stockholm, vol. 15, p. 317.

One specimen of this rather uncommon species was taken on the expedition. It seems to be generally rare in collections. The recorded range is from Missouri and Colorado south through Texas into Mexico to Yucatan. The few specimens from Texas that I have seen differ from the equally few Mexican specimens in having the elytral markings more distinct. These are usually assigned to the subspecies *texana* Schaeffer which he placed as a variety of *L. decemlineata*. In the Mexican specimens, including the one collected on the expedition, the black elytral markings are less distinct except for the sutural ones and a few short fine lines near the humerus. Faint brown lines sometimes replace the black ones.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: Yucatan.

Also Texas.

NEW RECORD FOR MEXICO: *Chihuahua*: Seventy-eight kilometers south of Ciudad Juarez, July 1, 1947, one.

### ***Leptinotarsa rubiginosa* (Rogers)**

*Doryphora rubiginosa* ROGERS, 1856, Proc. Acad. Nat. Sci. Philadelphia, vol. 8, p. 30.

This is definitely a species of the Mexican plateau, for it is found from southern Arizona, New Mexico, and southwestern Texas to southern Mexico where it begins to disappear in the more humid tropical regions. It is nowhere common throughout its range, appearing to be rather locally distributed. The specimens I have seen vary somewhat in color from pale yellow to a brick red. Suffrian refers to the latter as the proper color, but most of the specimens I have examined seem to answer Rogers' (1856) description expressed as "yellowish brown." This color I believe is largely dependent on the manner of collecting, for specimens in life are more brilliant. Stål (1862, 1865) mentions that the thorax

is sometimes marked with a black discoidal spot. Like Jacoby (1880–1892) I have never seen any specimens so marked.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: *Sinaloa*: Mazatlan. *Guerro*: Alvarez Mountains. *Distrito Federal*: Mexico City; Milpas (not located); Tlalpan; Santa Fé (Tower). *Guanajuato*: Guanajuato. *Puebla*: Puebla.

NEW RECORDS FOR MEXICO: *Durango*: Palos Colorados, August 5, 1947, 8000 feet, four.

### ***Leptinotarsa cacica* Stål**

*Leptinotarsa cacica* STÅL, 1859, Öfvers. K. Vetensk.-Akad. Förhandl., vol. 15, p. 475.

Seven specimens of this large and handsome insect were taken by the expedition. They all come from the valley of the Rio Mesquital, near the town of Nombre de Dios, Durango. The valley is luxuriantly tropical, surrounded by high, more or less arid hills. This record is far to the north of the previously known range, which was a rather limited area in the tropical regions of southern Mexico, along the Gulf of Mexico, but not crossing over to the Pacific slope. It is nowhere common throughout its range. Apparently the Isthmus of Tehuantepec limits its spread southward into Guatemala. Tower, indicates, however, that it follows the Gulf eastward as far as Villa Hermosa, where it seems to occur in savanna country.

Nothing is known of its habits and food plants. I have never seen this insect in life, but in all the specimens taken by the expedition and those I have examined in various collections, the elytra vary from bright testaceous to a dirty yellow narrowly margined with greenish blue. In the various descriptions of this insect, no mention is made of any other color of the elytra. However, Dr. Herman Spieth, while on the expedition, photographed these beetles in Kodachrome, while alive and resting on the food plants. The Kodachrome slides show the elytra to be a distinct red. As a number of other species of this genus have reddish elytra in life which turn to reddish yellow when killed, perhaps this species does the same. It is impossible to determine the food plant of this species from the photographs, but it appears to be one of the broader-leaved Solanaceae, many species of which occur throughout this region. The plants according to Dr. Spieth were about 4 to 5 feet in height.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Cordova; Orizaba; Amatlan; Misantla; Mellan; Cerro de Plumas (not located). *Tabasco*: Villa Hermosa.

NEW RECORDS FOR MEXICO: *Durango*: Nombre de Dios, August 13, 1947, 5900 feet, seven.

#### SUBFAMILY GALERUCINAE

The Galerucinae are generally small to medium-sized, leaf-eating beetles, oval or oblong in shape, with usually a softer elytral and body structure. The head is exposed; antennae long, slender, placed on the front between the eyes and close together at base, third joint usually smaller than fourth; eyes finely granulate, not emarginate; thorax truncate or emarginate in front, sides distinctly margined; elytra longer than abdomen; prosternum invisible between the front coxae: hind femora slender, adapted for walking.

The larvae feed exposed on foliage, frequently on the under side. Some species are numerous enough to do considerable damage, and a number have become serious economic pests.

This subfamily and the next, the Halticinae, make up the Trichostomes in some classifications.

The Galerucinae are among the largest of the chrysomelid subfamilies, with most of members feeding on the lush vegetation of the tropics. The South American tropics are particularly favored. Of nearly 4000 species recorded, about 400 occur in Mexico, while only about 140 species are listed from North America. Two species were taken on the expedition.

#### *Galerucella notulata* (Fabricius)

*Galeruca notulata* FABRICIUS, 1801, *Systema eleutheratorum*, vol. 1, p. 489.

An extremely widely distributed species, ranging from southern Canada south to Florida and Texas and into Mexico and Guatemala. It is sometimes confused with *G. notata* (Fabricius), which is also widely distributed throughout the United States but as far as known does not occur in Mexico. In *notata* the subsutural line is very short, never reaching the middle; in *notulata* it is longer and usually meets the sutural line beyond the middle. I have found that in many specimens of *notulata* the two lines do not actually meet but come close together and always beyond the middle.



TYPE LOCALITY: North America.

RECORDED MEXICAN DISTRIBUTION: *Coahuila*: Saltillo. *Distrito Federal*: Mexico City. *Veracruz*: Tuxtla.

Also Guatemala.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Clara, July 2, 1947, one; San José Babícora, July 5, 1947, 7100 feet, six; Madera, July 6, 1947, 7200 feet, one; Catarinas, July 26, 1947, 5800 feet, three.

### ***Monoxia puncticollis* (Say)**

*Galleruca puncticollis* SAY, 1823, Jour. Acad. Nat. Sci. Philadelphia, vol. 3, p. 458.

Not previously recorded from Mexico, the 41 specimens of this species collected by the expedition push the distribution far to the south of any other records. It is a rather common and extremely widely distributed insect, found from Massachusetts west to Wyoming and south to Florida, Texas, and southern California. Throughout this extensive range the species shows considerable color variation, from entirely black to light tan. Intermediate forms show traces of a black longitudinal vitta near the lateral margin. In others the vitta is well marked. The specimens taken on the expedition are all light, with only a few showing a faint, frequently interrupted, black vitta.

TYPE LOCALITY: Mississippi and Arkansas.

RECORDED MEXICAN DISTRIBUTION: Not previously recorded.

NEW RECORDS FOR MEXICO: *Coahuila*: San Pedro de Colonias, August 20, 1947, 3700 feet, 39; 25 miles southeast of Pedro de Colonias, August 21, 1947, 3700 feet, two.

### SUBFAMILY HALTICINAE

Small to medium-sized, leaf-eating beetles, oval or elongate, very similar in appearance to the Galerucinae, but distinguished mainly by the hind femora which are usually greatly enlarged and thickened for leaping. For this ability they are frequently referred to as Jumping or Leaping Beetles for the larger species, and Flea-beetles for the very small beetles which are not much larger than fleas. Head exposed, antennae long, slender, placed on the front between the eyes rather close together, third joint of the antennae in most species equal to, or longer than, fourth; thorax usually broad, truncate or emarginate in front, sides distinctly margined;

elytra longer than, and covering, abdomen; front coxae separated by the prolongation of the prosternum; hind tibiae with terminal spur.

The larvae of the Halticinae, as do those of the Galerucinae, feed exposed on the foliage. Only in a few species are they numerous enough to cause great damage, but those that do are among our very serious pests. The adults rest on the upper surface of a leaf, particularly in the sunshine, but are ever ready to leap at the slightest approach of danger. They usually fall to the ground, where they retract their legs and lie motionless until the disturbance has passed.

The Halticinae are the largest family of the Chrysomelidae. They number nearly 6000 species, of world-wide distribution, with new ones constantly being added. Nearly half of these are from South and Central America. Approximately 250 species are listed from North America, north of Mexico. Twenty-three species and four new species were taken on the expedition.

### ***Systema taeniata* (Say)**

*Altica taeniata* SAY, 1824, in Keating, Narrative of an expedition to...St. Peter's River...under . . .Long, vol. 2, p. 294.

This very common species is found from the New England states west to Nevada and California and south to Florida, Arizona, and into Mexico. Throughout its wide range, there are many variations, largely in color. Some of these variations have been described as species, but they undoubtedly have no more status than that of aberrations. Jacoby did not recognize *taeniata* from Mexico but listed one species, *discicollis* Clark, and described another, *semivittata* Jacoby, both from Guanajuata, which are now generally considered to be color forms of *taeniata*.

A large series of *taeniata* was taken on the expedition, but from only three localities that are rather close together.

TYPE LOCALITY: "Northwest Territories" (Say).

RECORDED MEXICAN DISTRIBUTION: No exact records from Mexico, although Horn reports of *taeniata*, "the latter species has long been known to me from many parts of Mexico."

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Clara, July 2, 1947, four; Madera, July 6, 1947, 7200 feet, 78; Matachic, July 7, 1947, 30; 15 miles east of Parral, July 15, 1947, 5500 feet, one; Catarinas, July 26, 1947, 5800 feet, three.

### ***Systema nigroplagiata* Jacoby**

*Systema nigroplagiata* JACOBY, 1884, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 324, pl. 19, figs. 23, 24.

This well-marked species can be easily recognized by its fulvous color, with a triangular black spot around the scutellum, a transverse band behind the middle, a small spot on the middle lateral margin, and usually one on the humerus. These markings may all be reduced in size or broken into smaller spots. The three specimens taken by the expedition extend the known range of this species considerably to the north of where it had previously been recorded.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Guanajuato*: Guanajuato. *Morelos*: Cuernavaca. *Oaxaca*: Juquila. *Veracruz*: Jalapa. *Guerro*: Chilpancingo; Omilteme; Amula; Tepetlapa; Xucumanatlan. Milpas (not located).

Also Guatemala: Duenas.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Barbara, Santa Barbara District, July 17, 1947, 6300 feet, one. *Durango*: Las Puentes, July 24, 1947, 7500 feet, two.

### ***Systema variabilis* Jacoby**

*Systema variabilis* JACOBY, 1884, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 323, pl. 19, figs. 16-19.

As its name indicates this is an extremely variable species, particularly as to color. In a large series, specimens from one locality may vary from entirely testaceous or with a few small black spots to entirely black or at most tinged with fulvous on the head or prothorax. Of the two specimens taken by the expedition, one is almost entirely black, with only a few suggestions of fulvous on the head and margins of the thorax, and the other has the head, thorax, epithorax, and legs testaceous. The species is usually semi-flattened, somewhat widened posteriorly. Head nearly impunctate, the frontal tubercles flattened, smoothed, and joined except for a sharp central suture. Antennae long and slender, third joint one-half longer than second, equal to fourth. Thorax scarcely visibly punctured, elytra distinctly and closely punctured. Length, 5.5-6.0 mm.

This is a widely distributed species, ranging from central Mexico south through Central America into Panama. More intensive

collecting in northern Mexico, where the two specimens were taken, will probably show that the insect is more widely distributed in the north than heretofore indicated.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Jalapa; Tuxtla; Cordova; Toxpam. *Oaxaca*: Juquila. *Guanajuato*: Guanajuato. *Morelos*: Cuernavaca.

Also Guatemala: Acetuno; San Geronimo; Zapote; Capetillo. Costa Rica: Cache. Panama: Volcan de Chiriqui; Bugaba.

NEW RECORDS FOR MEXICO: *Durango*: Les Puentes, July 24, 1947, 7500 feet, one; 6 miles northeast of El Salto, Durango District, August 10, 1947, 8500 feet, one.

### ***Systema obliterata*, new species**

Elongate, nearly parallel, shining, entirely black or blackish, with testaceous thoracic margins, and traces of discal vittae usually more distinct at base and apex, punctured on head and thorax, less so on elytra.

MALE: Head entirely black, nearly as broad as long, finely punctured, punctures more numerous around the eyes, nearly smooth on vertex, frontal tubercles visible, separated by a deep impressed line, each with two or three distinct punctures; antennae slender, reaching beyond middle, first segment piceous, second to fifth somewhat testaceous, particularly at the base of each segment, the rest black, third segment slightly longer than second, shorter than fourth, from there to end subequal. Pronotum entirely black, or black margined more or less distinctly on all four margins with testaceous, finely punctured in center, more coarsely around all margins, hind angles obtuse, front angles broadly rounded, thickened, lateral margins slightly rounded, somewhat angulated at middle, particularly in the males, basal sulcus invisible except for a small round depression at center. Scutellum smooth, shining black, impunctate. Elytra entirely black, or black with traces of a testaceous discal vitta, a lateral vitta, or both, the former when present never entire, but irregular and frequently obliterated at the middle, leaving the basal and apical portions as irregular elongated spots, the lateral vitta when present usually more complete, extending from a little behind the humerus nearly to the apex where it becomes thin and faint; elytra distinctly and rather coarsely and closely punctured, less distinctly towards apex, sutural margin smooth, slightly elevated,

epipleura either black or testaceous, smooth; under side and legs shining, entirely black, except those that, showing testaceous above, usually have the prosternum also somewhat paler, finely and closely punctured, each puncture bearing a fine short gray hair; when viewed under low power the legs and under side present a somewhat gray appearance. In the males, the color is usually darker than in the females; the hind femora reach the tip of the elytra, and a deeply impressed pit is on the last abdominal segment. Length, 4.5–5.5 mm.; width, 1.5–2 mm.

FEMALE: Similar to male.

TYPE MATERIAL: Holotype, male, collected at San José Babícora, Chihuahua, Mexico, July 5, 1947; allotype, female, same data as holotype; Paratypes, one male, three females, same data. All types deposited in the collection of the American Museum of Natural History.

This species is very similar to *Systema thoracica* Jacoby (1880–1892) described from specimens collected at Puebla, Mexico, and Duenas, Zapote, and San Geronimo, Guatemala. I have not seen specimens of *S. thoracica*, but *S. obliterata* differs from the description by Jacoby in being black, not blackish green; anterior legs are black, not testaceous; no traces of testaceous on the head below the antennae; the testaceous discal vittae are obliterated in the middle.

### ***Disonycha varicornis* Horn**

*Disonycha varicornis* HORN, 1889, Trans. Amer. Ent. Soc., vol. 16, p. 210.

A species easily separated from a number of others which it resembles by the bright blue or purple elytra; the prothorax, twice as wide as long, convex, sides with an explanate margin distinctly widening near the front angles and slightly but distinctly notched behind the angles. *Disonycha mexicana* Jacoby resembles *D. varicornis* Horn and even has a somewhat similar prothorax, but has entirely brown antennae with the third joint much shorter than the fourth. In *varicornis* the first four joints and the last one or two are pale; third, fourth, and fifth are almost equal; sometimes the third is slightly shorter.

Eleven specimens of this rare species were taken in three rather closely associated localities in the state of Durango, considerably south of where it has been previously recorded. Heretofore it has been taken only in Baja California and north of the border in Texas and California. Eventually it may prove to be a northern color form or subspecies of *mexicana*, this name having priority.

Since this species is known to feed upon two widely distributed plants, *Opuntia leptocaulis* and *O. arborescens*, one would expect the insect to be better known and to appear more frequently in collections. This does not, however, seem to be the case. Perhaps a little more diligent search could discover more specimens and give us a better understanding of its distribution and relationship to the rest of the similarly marked species, both in the United States and Mexico.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: *Baja California*: Santa Rosa; San Felipe.

NEW RECORDS FOR MEXICO: *Durango*: Rodeo, San Juan del Rio District, July 29, 1947, 4700 feet, three; San Juan del Rio, July 30, 1947, 5200 feet, seven; San Lucas, August 2, 1947, 6700 feet, one.

### ***Disonycha collata* (Fabricius)**

*Crioceris collata* FABRICIUS, 1801, Systema eleutheratorum, vol. 1, p. 463.

An attractive species easily confused with *Disonycha politula* Horn and *D. semicarbonata* LeConte. From the first it can be easily separated by its generally smaller size, more greenish elytra, pale femora, and finely and often rather indistinctly punctuate elytra. From the second the brighter green color, the nearly impunctate thorax, and finely punctate elytra will at once distinguish this species. *Disonycha semicarbonata* is also, as far as known at present, a very uncommon species and extremely localized in distribution, being recorded only from Santa Fe and Magdalena Mountains in New Mexico and Boulder, Colorado. Contrariwise, *collata* is very widely distributed, ranging from Maine and the other New England states west to Missouri and Kansas, south into Florida, Texas, Mexico, and the Central American countries to Panama. It has also been reported from Cuba. The great variety of plants upon which it feeds undoubtedly contributes towards its wide dispersal. Among these are *Portulaca*, *Amaranthus*, chickweed, and such economic field crops as spinach, beets, and lettuce.

Jacoby (1880–1892) evidently had this species badly confused with *politula* Horn as well as other species. He recognized his confusion, for in the Supplement he said, "Some of the Mexican localities quoted by me belong to *D. politula*, Horn and will be found mentioned under that species." We therefore cannot take his Mexican distribution records as exact, for they might apply to

any of the four or five species of *Disonycha* about 6 mm. long with yellowish thorax and black, blue, purple or green elytra.

TYPE LOCALITY: Carolina.

RECORDED MEXICAN DISTRIBUTION: *Coahuila*: Monclova; Saltillo. *Durango*: Durango City. *Veracruz*: Jalapa; Cordova. *Oaxaca*: Oaxaca; Capulalpam. *Puebla*: Puebla. *Guanajuato*: Guanajuato. Cosomatepec (not located). Yolos (not located).

NEW RECORDS FOR MEXICO: *Chihuahua*: Delicias, July 11, 1947, 4150 feet, one; Catarinas, July 26, 1947, 5800 feet, two.

### *Disonycha politula* Horn

*Disonycha politula* HORN, 1889, Trans. Amer. Ent. Soc., vol. 16, p. 211.

A very pretty species with a wide range extending from Kansas, New Mexico, and Arizona south through Mexico into Guatemala. The bicolored head (black and yellow), yellow thorax, and bright shining blue elytra, densely punctured, and the bicolored posterior femora separate this species from the other dark-colored species. Four specimens from four localities were secured by the expedition. The recorded food plant is *Amaranthus palmeri* (S. Watson). Where this plant occurs in numbers, this beetle will probably be associated with it.

TYPE LOCALITY: New Mexico.

RECORDED MEXICAN DISTRIBUTION: *San Luis Potosí*: Hacienda de Bledos. *Guerrero*: Chilpancingo. *Guanajuato*: Capulalpam. *Veracruz*: Cordova; Jalapa. Yolos (not located).

NEW RECORDS FOR MEXICO: *Chihuahua*: San José Babícora, July 5, 1947, one; Matachic, July 7, 1947, one; Santa Barbara, Santa Barbara District, July 18, 1947, 7500 feet, one; Catarinas, July 25, 1947, 5800 feet, one. *Veracruz*: Jalapa, May 22, 1946 (J. and D. Pallister), one.

### *Disonycha tenuicornis* Horn

*Disonycha tenuicornis* HORN, 1889, Trans. Amer. Ent. Soc., vol. 16, p. 208.

Ten specimens of this rare and little known beetle were taken by the expedition, at four rather widely separated regions in Mexico. Previous to this it was known only from New Mexico and Arizona. The long slender antennae, very narrow elytral vittae, the submarginal vitta, brown and nearly obsolete but uniting at the apex with the sutural, more distinct vitta will easily distinguish this species.

TYPE LOCALITY: Southern Arizona.

RECORDED MEXICAN DISTRIBUTION: Not previously recorded.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Clara Canyon, 5 miles west of Parrita, June 27, 1947, four; Ojo Laguna, June 30, 1947, one; Cañon Prieto near Primavera, July 2, 1947, 6500–6800 feet, one. *Durango*: Six miles northeast of El Salto, Durango District, August 10, 1947, 8500 feet, four.

### ***Disonycha fumata quinquerutata* Schaeffer**

*Disonycha quinquerutata* SCHAEFFER, 1919, Jour. New York Ent. Soc., vol. 27, p. 336.

The 26 specimens of *fumata* collected on the expedition I have placed under Schaeffer's species of *quinquerutata*, now generally regarded as a subspecies of *fumata*. They are not separable by any structural characters, but only by their paler coloring. Blake (1933) mentions that they are smaller in size than typical *fumata*. In the specimens from Mexico, I do not find this to be so, for they average at least 6 mm. This color form has, up to the present, been known only from New Mexico, Arizona, Utah, and California, while typical *fumata* is recorded from Texas, Missouri, and perhaps ranges over the southern half of the United States. It has not before been taken in Mexico.

TYPE LOCALITY: Bill Williams Fork, Arizona.

RECORDED MEXICAN DISTRIBUTION: Not before recorded.

NEW RECORDS FOR MEXICO: *Chihuahua*: Delicias, July 11, 1947, 4150 feet, 10; Delicias, July 13, 1947, 15; 80 kilometers north of Chihuahua, June 30, 1947, one.

### ***Disonycha figurata* Jacoby**

*Disonycha figurata* JACOBY, 1884, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 314, pl. 18, fig. 24.

Because of the considerable variation shown by individuals, this is rather an indefinite species to establish with certainty, for it seems to merge with several other species. The darker forms may have the vittae distinct enough to be easily confused with *latifrons*. Blake (1933) gives the pale under surface as an easy character by which to separate the two. In a series of specimens from a given locality the more or less obsolete elytral vittae should serve to differentiate this species from all others. It has a wide range, extending from Nevada and Arizona, two states from which it has



been recorded, south through Mexico and Central America into Panama.

TYPE LOCALITY: Not given.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Ventanas. *Oaxaca*: Juquila; *Oaxaca*. *Veracruz*: Cordova. *Aguaascalientes*: Calpululpan. *Ckiapas*: Tuxtla. *Guanajuato*: Guanajuato. Playa Vicente (not located). Cerro de Plumas (not located).

Also Guatemala: Capetillo; Duenas; Chacoj. Panama: Bugaba.

NEW RECORDS FOR MEXICO: *Chihuahua*: Two miles west of Matachic, July 7, 1947, 6400 feet, one; 8 miles west of Matachic, July 8, 1947, 7200 feet, three; Santa Barbara, July 18, 1947, 6300 feet, three; Santa Barbara, Santa Barbara District, July 18, 1947, 7500 feet, one; 63 miles west of Santa Barbara, July 20, 1947, 5500 feet, two; Huejotitlan, July 21, 1947, 5700 feet, one.

### ***Phrynocephala deyrollei* Baly**

*Phrynocephala deyrollei* BALY, 1876, Trans. Ent. Soc. London, p. 444.

A large series of 63 specimens was taken by the expedition from two widely separated localities in northern Mexico. Heretofore it has been recorded only from the southern part of the Mexican plateau and Guatemala. More intensive collecting will undoubtedly find it widely distributed throughout Mexico wherever the food plants, which we do not know, are growing. Although most of the specimens taken by the expedition were not far from the United States border, it has not been recorded north of the Rio Grande.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Guanajuato*: Guanajuato. *Puebla*: Puebla. *Oaxaca*: Capulalpam; *Oaxaca*. Yolotepec (not located). La Parada (not located).

Also Guatemala.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Clara, July 2, 1947, 61; Santa Clara, Namiquipa District, July 3, 1947, 6500 feet, one. *Durango*: Palos Colorados, August 5, 1947, 8000 feet, one.

### ***Phrynocephala punctulata*, new species**

Oblong-ovate, slightly depressed, feebly shining; head, pronotum, legs, and three basal joints of antennae reddish yellow, tarsi usually somewhat darker; scutellum black; elytra blue-green;

under side blue-black, except the head and prosternum which are reddish.

**MALE:** Head very elongate, nearly twice as long as wide, inserted into the thorax nearly to the eyes, front nearly vertical; eyes prominent, widely separated, moderately granulate; antennae close together, separated only by a fine but distinct carina which extends to the clypeus; directly above the antennae are two small, but distinct, smooth, triangular callosities separated by a fine, deep suture; vertex broad, distinctly but sparsely punctured; antennae 11-segmented, reaching to middle or slightly beyond, from third segment to end thinly covered with short, very fine gray hairs, mixed with a few longer and more erect gray hairs, third segment the longest, at least three times as long as second, second one-half the length of the first, the rest nearly equal and about the length of the first. Pronotum twice as wide as long, finely alutaceous, nearly impunctate, but with a few very fine scattered punctures, basalar groove obsolete, faintly visible for a short distance on each side of middle, apex and base finely margined, sides more broadly and deeply explanate, evenly rounded from base to apex, which is nearly as wide as base, base arcuate, hind angles small, right-angled, front angles thickened, obtuse, slightly prolonged; scutellum triangular, as broad at base as long, tip rounded, smooth, impunctate, shining. Elytra broader than pronotum and broadest just behind the middle, thence rounding to apex, which is also slightly rounded, sutural margin faintly elevated one-fifth of distance from scutellum, then finely but distinctly striate to apex, marginal striae distinctly impressed, humerus elevated, rounded, and continuing in a costa to beyond the middle, surface finely, rather closely but distinctly punctured, intervals finely alutaceous; epipleura smooth, shining. Under side and legs finely but sparsely punctured, each puncture bearing a short, fine, grayish hair longer towards the tip of abdomen. Tibiae grooved for entire length. Tarsi dilated, particularly the first and middle pair, less so in the hind tarsi. In the two front pair the first joint is the broadest, as broad as long, second one-half as broad, third nearly as broad as first, and bilobed. The last ventral abdominal segment in the male is broadly emarginate at middle into which fits the convex but inflexed pygidium.

**FEMALE:** Similar to male except that the tarsi are normal and the last ventral abdominal segment is truncate at the apex. Length, 5-6 mm.; width, 3 mm.

**TYPE MATERIAL:** Holotype, male, collected at Santa Barbara, Santa Barbara District, Chihuahua, Mexico, 7500 feet, July 18, 1947; allotype, female, collected at San Juan del Rio, Durango, Mexico, 5200 feet, July 30, 1947; paratypes, Santa Barbara, Chihuahua, Mexico, 6300 feet, July 18, 1947, one male; San Juan del Rio, Durango, Mexico, 5200 feet, July 30, 1947, one male; San Juan del Rio, Durango, Mexico, 5200 feet, July 30, 1947, two females. All types in the collection of the American Museum of Natural History.

The elongated head at once distinguishes this species from most of the other members of *Phrynocephala*. In this respect, however, it is similar to the description of *Phrynocephala capitata* Jacoby (1880–1892), specimens of which I have not seen. Jacoby described his species from two specimens taken at Tuxtla, Mexico. The present species differs from *capitata* principally in its smaller size, more elongate, slender antennae, less opaque appearance, and in particular in the very distinctly punctured elytra.

Superficially it resembles *Hemiphrynus intermedius* Jacoby (1888–1892), and specimens may well be confused in collections. The sulcate posterior tibiae and long third joint of the antennae definitely rule it out of the genus *Hemiphrynus* according to the characters set up for this genus by Horn (1889).

### ***Altica ignita* Illiger**

*Altica ignita* ILLIGER, 1807, Mag. Insectenk., vol. 6, p. 117.

Only one specimen of this very common and extremely widely distributed species was taken on the expedition. It ranges from the Hudson Bay region and the New England states west to Colorado and south to Florida and Texas, and into Baja California, Mexico, and the Bahama Islands. As is to be expected, throughout this vast range the species shows considerable variation in size, color, and in the depth of the antebasal groove and the punctuation of the elytra. In most specimens the antebasal groove is distinct for the entire width of the thorax, and the punctures of the elytra are semistriate, distinct on the base, less so towards the apex. The specimens of the more northern areas tend to be larger and are usually a shining coppery or greenish, becoming dull blue in those from the Gulf states southward.

The insect feeds on the foilage of a variety of trees, shrubs, and plants. Blatchley records it as occurring by the thousands on

water purslane, *Ludwigia palustris* Ell. Since many of the plants that it attacks, such as strawberry, truck crops, and rose bushes, are of economic importance, a great deal on the biology of the insect has been published in Federal and state reports.

TYPE LOCALITY: North America, Pennsylvania.

RECORDED MEXICAN DISTRIBUTION: *Veracruz*: Atoyac. *Baja California*.

NEW RECORD FOR MEXICO: *Chihuahua*: Delicias, July 11, 1947, 4150 feet, one.

### ***Altica tombacina* Mannerheim**

*Altica tombacina* MANNERHEIM, 1853, Bull. Soc. Imp. Nat. Moscou, vol. 26, no. 3, p. 259.

Mannerheim's description, while very incomplete, seems to refer to this species rather than to *A. evicta* LeConte. From *evicta*, with which it is probably confused in collections because of the similarity in color, it can be easily separated by the lack of a small fovea at each end of the antebasal line. It is also undoubtedly confused with *A. marevagans* Horn, which it resembles structurally, but can at once be separated by its brownish cupreo color, instead of blue or green, and by its distinctly punctate elytra.

This species has not previously been reported from Mexico, but has been recorded from three widely separated regions—California, Montana, and Alaska (Mannerheim). This last record is somewhat questionable and may refer to some other species; or, what is more than likely, the record is an error in the locality name.

TYPE LOCALITY: California.

RECORDED MEXICAN DISTRIBUTION: No previous records.

NEW RECORDS FOR MEXICO: *Chihuahua*: San José Babícora, July 5, 1947, 7100 feet, two; Santa Barbara, Santa Barbara District, July 17, 1947, one; Santa Barbara, July 18, 1947, one. Durango: Palos Colorados, August 5, 1947, 8000 feet, one; 6 miles northeast of El Salto, Durango District, August 10, 1947, 8500 feet, one; Otinapa, August 11, 1947, 8200 feet, two.

### ***Altica foliacea* LeConte**

Figure 15

*Altica foliacea* LECONTE, 1858, Proc. Acad. Nat. Sci. Philadelphia, vol. 10, p. 86.

This is a rather widely distributed species ranging from Missouri, Colorado, and California, south into Mexico. Although not generally common, a fair series of specimens was taken by the expedition from seven localities. Specimens vary in coloration from green to dark blue. The greenish forms seem to be more prevalent in the eastern and southern parts of its range, while the specimens from Arizona westward tend to be more bluish. Nearly all the specimens taken on the expedition were greenish. This insect has been recorded as injuring grapevines, but very little is actually known of its habits. *Altica punctipennis* LeConte, described from Baja California, is now generally considered a synonym of this species.

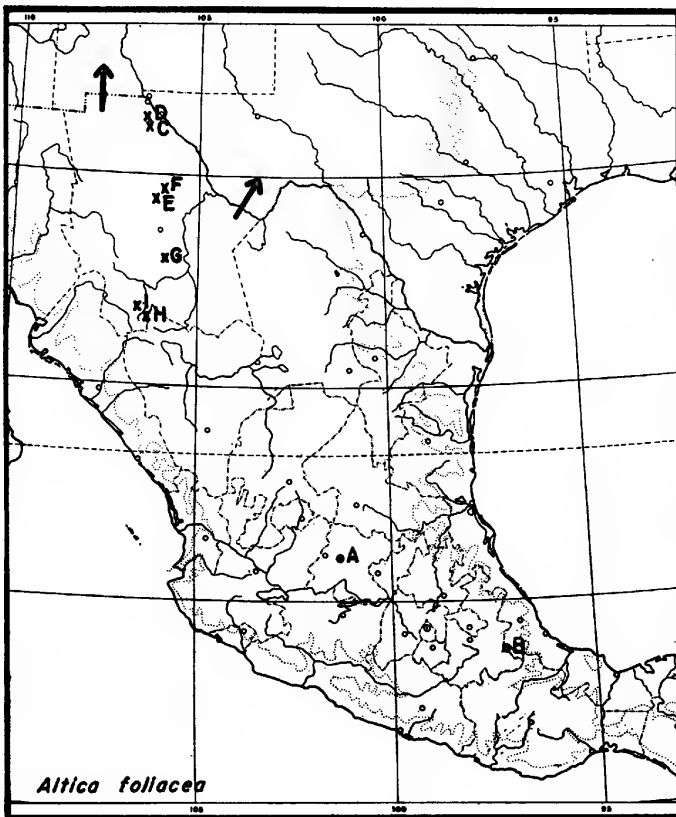


FIG. 15. Distribution of *Altica foliacea* LeConte.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: *Guanajuato*: Guanajuato (A). *Veracruz*: Orizaba (B).

NEW RECORDS FOR MEXICO: *Chihuahua*: Samalayuca (C), June 24, 1947, 17; 239 kilometers south of Ciudad Juarez (D), July 1, 1947, 47; Santa Clara (E), July 2, 1947, two; Cañon Prieto, near Primavera (F), July 2, 1947, 6500–6800 feet, one; Delicias (G), July 13, 1947, one; Santa Barbara (H), Santa Barbara District, July 18, 1947, 7500 feet, one; Huejotitlan (I), July 21, 1947, 5700 feet, one.

### ***Altica obliterata* LeConte**

*Haltica obliterata* LeConte, 1859, Smithsonian Contrib. Knowledge, vol. 9, p. 26.

This is a common species in a rather limited area of southwestern United States and northern Mexico. It can be easily distinguished from most of the other species of *Altica* by its generally convex and robust body, opaque blue color, and almost entirely obsolete antebasal impression.

TYPE LOCALITY: Arizona and New Mexico.

RECORDED MEXICAN DISTRIBUTION: *Sonora*: North Sonora.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Clara Canyon, 5 miles west of Parrita, June 27, 1947, 5600 feet, one; Ojo Laguno, June 30, 1947, nine; Primavera, June 30, 1947, 5500–6000 feet, 12; Cañon Prieto, near Primavera, July 2, 1947, 6500–6800 feet, one.

### ***Altica rockefelleri*, new species**

Oval, nearly twice as long as wide, convex, robust, shining purple.

MALE: Head as wide as long, finely alutaceous, set in pronotum to eyes, a few coarse punctures around eyes, frontal carina distinct, not sharply convex, frontal tubercles large, round, nearly smooth, separated by a median sulcus and outlined above by a transverse sulcus which extends above the eyes; antennae piceous, joints 2, 3, 4 gradually longer. Pronotum convex, one-half wider than long, narrowed in front, sides regularly arcuate, finely margined at base and sides, slightly broader towards apical angles, which are prominent but rounded, hind angles obtuse, antebasal groove more or less visible, at least in some part, usually obliterated at sides and sometimes in middle, separated one-third of distance from base, surface very finely alutaceous and finely, distinctly, and rather closely punctured, more coarsely towards

apical angles. Scutellum greenish black, broadly triangular, rounded at apex, nearly smooth. Elytra broader at base than pronotum, broadest behind middle, convex, finely alutaceous, finely but distinctly and not so closely punctured as pronotum, umbone distinct but not sharply defined with impressed lines, sutural and lateral edges finely margined, less distinctly at apex, faintly lined with greenish, epipleura nearly smooth, same color as above. Under side and legs piceous, faintly greenish to bronze-purplish, punctured, more distinctly on legs and abdomen, with fine hairs more thickly on tibiae and posterior margin of femora. With a broad, smooth, impressed area extending forward to about the middle of last ventral segment. Length, 5.5–6 mm.; width, 3–3.5 mm.

FEMALE: Similar to male.

TYPE MATERIAL: Holotype, male, collected at Palos Colorados, Durango, Mexico, August 5, 1947, 8000 feet; allotype, female, same data as holotype; paratypes, two males and one female, same data as holotype; four males and four females, collected at Santa Barbara, Chihuahua, Mexico, July 18, 1947, 6300 feet. All type material in the collection of the American Museum of Natural History.

This species in Horn's (1889) key would work out between *A. californica* Mannerheim and *A. obliterata* LeConte, being more closely related to the former, from which it can easily be separated by its larger size and more purplish color. From *A. obliterata* LeConte, besides the shining purplish color, its shorter and broader shape will at once distinguish it.

This attractive species is named in honor of Dr. David Rockefeller, whose interest and support have made possible the study and research for this paper.

### ***Chaetocnema cribrifrons* LeConte**

*Chaetocnema cribrifrons* LECONTE, 1879, Bull. U. S. Geol. and Geogr. Surv., vol. 5, p. 517.

This widely distributed species, found throughout the southern half of the United States from Georgia through Texas to southern California, has not previously been recorded from Mexico. Five specimens from four localities were collected in the two states of Chihuahua and Durango. This species is very close to *C. capitata* Jacoby which has been recorded in Mexico from Guanajuato and

south into Guatemala. When more material is available the two species may merge into one.

TYPE LOCALITY: Alamosa, Colorado.

RECORDED MEXICAN DISTRIBUTION: Not previously recorded.

NEW RECORDS FOR MEXICO: *Chihuahua*: Primavera, June 30, 1947, 5500–6000 feet, one; summit northeast of San José Babícora, July 4, 1947, 7700 feet, one; Santa Barbara, Santa Barbara District, July 18, 1947, 7500 feet, one. *Durango*: San Juan del Rio, July 30, 1947, 5200 feet, two.

### **Blepharida rhois** (Forster)

Figure 16

*Chrysomela rhois* FORSTER, 1771, *Novae species insectorum*, p. 21.

This is a common species throughout a large part of North America, from the New England states to Montana and south to Florida, Texas, and Arizona. Heretofore it has never been recorded south of the border, where it is replaced in Central and South America and the West Indies by a number of other species. The beetle is sometimes called the Jumping Sumach Beetle, sumach being one of its food plants. Throughout its wide geographical distribution, as might be suspected, there is great variation in color pattern, particularly in the amount of rufotestaceous on the upper side. In the large amount of material from the United States that I have examined, the specimens from the northern part of the range are darker, for in these the rufotestaceous color spreads into the intervals between the striae, forming more or less continuous bands. In specimens from the southwest, and this applies also to those collected by the expedition, they appear much lighter. In these the rufotestaceous color is restricted more to the punctures spreading into the intervals to a very limited extent. This variation in coloring has resulted in a number of synonyms, but there seems to be no exact line of demarcation whereby these names may be retained as distinct species. Eleven specimens from four localities were taken by the expedition. In spite of the small number of specimens secured, the fact that they were taken in four rather widely separated spots shows that this species is undoubtedly rather widely distributed throughout northern Mexico. Specimens will probably be found wherever the food plants occur in plenty.

TYPE LOCALITY: North America.



RECORDED MEXICAN DISTRIBUTION: None.

NEW RECORDS FOR MEXICO: *Chihuahua*: Sixteen miles south-east of Chihuahua (A), July 11, 1947, two; 20 miles southwest of Camargo (B), July 13, 1947, 4500 feet, seven; Valle de Olivos (C), July 20, 1947, 5500 feet, one. *Durango*: San Juan del Rio (D), July 30, 1947, 5200 feet, one.

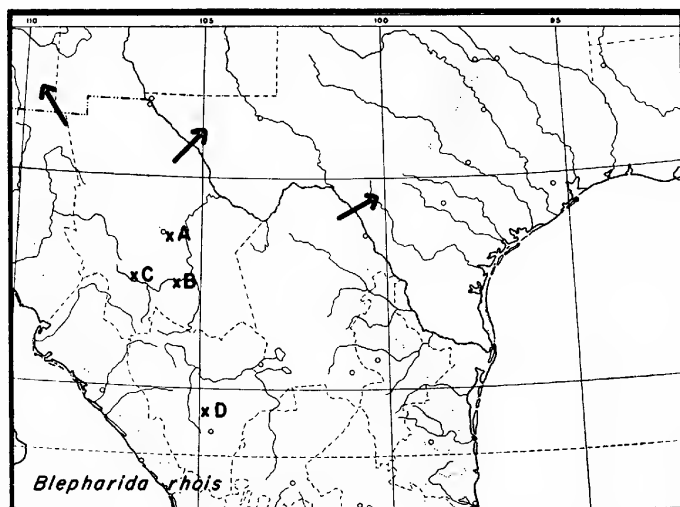


FIG. 16. Distribution of *Blepharida rhois* (Forster).

### ***Omophoita abdominalis* (Chevrolat)**

*Oedionychis abdominalis* CHEVROLAT, 1834, Coléoptères du Mexique, fasc. 2, p. 65.

This very widely distributed species ranges from just over the United States border in Texas south through Mexico, Central America, and Panama into the South American countries of Colombia and Venezuela. It seems to be common throughout its range but particularly in the Central American countries. Perhaps because of its brilliant, conspicuous colors, yellow thorax with dark blue elytra, and large size (10 mm.) it is more easily seen and therefore picked up by collectors. Although a fairly large series of 64 specimens were taken by the expedition, only four localities are represented. All but one of these are in the state of Durango.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Presidio. *Oaxaca*: Oaxaca. *Guanajuato*: Guanajuato. *Veracruz*: Cordova; Orizaba;

Jalapa. *Morelos*: Cuernavaca. *Guerrero*: Xautipa. *Hidalgo*: Tula. *Michoacan*: Tacambaro. *San Luis Potosí*: San Luis Potosí.

Also British Honduras: Rio Sarstoon. Guatemala: San Geronimo; Capetillo; Purula; Duenas. Nicaragua: Chontales. Costa Rica: Volcan de Irazu. Panama: Volcan de Chiriqui. Colombia. Venezuela.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Barbara, Santa Barbara District, July 18, 1947, 7500 feet, one. *Durango*: Palos Colorados, August 5, 1947, 8000 feet, 44; Otinapa, August 11, 1947, 8200 feet, four; Nombre de Dios, August 13, 1947, 5900 feet, 15. *Sinaloa*: Four miles east of Coyotitan, May 5, 1949, 500 feet (G. M. Bradt), 81. *Distrito Federal*: San Jeronimo, June 2, 1946 (J. and D. Pallister), 48; San Jeronimo, June 11, 1946 (J. and D. Pallister), six; San Jeronimo, July 1, 1946 (J. and D. Pallister), six. *Veracruz*: Cordoba, May 15, 1946 (J. and D. Pallister), two. *Morelos*: Cuautla, July 13, 1946 (J. and D. Pallister), two.

Also Guatemala: Nebaj, August 9, 1947, 6000 feet (C. and P. Vaurie), 27; Cunen, August 11, 1947, 6000 feet (C. and P. Vaurie), seven; Duenas, August 18, 1947, 4500 feet (C. and P. Vaurie), two; Capetillo, August 21, 1947, 5000 feet (C. and P. Vaurie), three.

### *Oedionychis virgatus* Harold

*Oedionychis virgata* HAROLD, 1880, Deutsche Ent. Zeitschr., p. 222.

A species usually distinguished by the narrower elytral bands, which are frequently blue-black. The lateral band is close to the margin and does not join the sutural stripe at the apex. From its presently known range it is a species of the dry Mexican plateau, descending into the more humid regions of southern Mexico in the states of Veracruz and Oaxaca. It is not recorded from north of the Mexican border.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Chihuahua*: Pinos Altos. *Puebla*: Puebla. *Veracruz*: Jalapa; Cordova; Veracruz. *Oaxaca*: Oaxaca. Yolos (not located). Panistlahuaca (not located).

NEW RECORDS FOR MEXICO: *Chihuahua*: Eight miles west of Matachic, July 8, 1947, 7200 feet, two. *Durango*: Palos Colorados, August 5, 1947, 8000 feet, one.

### **Oedionychis decemguttatus** Fabricius

*Galleruca decemguttata* FABRICIUS, 1801, Systema eleutheratorum, vol. 1, p. 492.

This is undoubtedly the most widely distributed species of its genus, ranging as it does from the Rio Grande south through Central America and into northern South America. As far as known, it has not been taken north of the United States border. Throughout its wide range this species shows wide variation in color, size, and even in structure. Because of this extreme variation numerous species have been established, but there seems, at the present time, to be no logical reason for retaining any of these as species, for no exact line can be drawn to separate the numerous designs in color or pattern.

Seven specimens, from five widely separated localities in northern Mexico, taken on the expedition, exhibit a pattern that differs markedly from those farther to the south. Jacoby (1880–1892) also observed this difference in one specimen that he had from Presidio, Mexico. These northern forms differ in having the basal spot transverse instead of rounded and projecting in a branch to reach the basal margin of the elytra, and the transverse band in front of the apical spot is sinuate and deeply dentate along its posterior margin. In two specimens taken on the expedition, each from a separate locality near Camargo, Chihuahua, Mexico, the yellow spots are so enlarged as to coalesce, leaving the brown ground color only as short lines or dots to show what the pattern might have been. This pattern as exhibited by the northern forms is similar to that described as *O. jacobiana* Horn (1889). They differ from this species in a number of small details, but particularly in the absence of the white terminal segment of the antennae. Horn based his description on a single male specimen from southern Arizona. Until more material from northern Mexico and southwestern United States is available for study, I am leaving this northern color form as a variation of *O. decemguttatus*.

TYPE LOCALITY: South America.

RECORDED MEXICAN DISTRIBUTION: *Chihuahua*: Presidio. *Veracruz*: Jalapa; Orizaba; Veracruz. *Morelos*: Cuernavaca.

Also British Honduras: Rio Hondo. Guatemala: Zapote; Chacoj; Purula. Nicaragua: Chontales. Costa Rica: Volcan de Irazu; Cache. Panama: David; Bugaba; Caldera in Chiriqui. Brazil. Puerto Rico.

NEW RECORDS FOR MEXICO: *Chihuahua*: Twenty-five miles southwest of Camargo, July 14, 1947, one; 42 miles southwest of Camargo, July 15, 1947, 4900 feet, one. *Durango*: San Juan del Rio, July 30, 1947, 5200 feet, three; Nombre de Dios, August 13, 1947, 5900 feet, one; Pedricena, August 19, 1947, 4500 feet, one.

### ***Oedionychis icteriderus* Harold**

*Oedionychis icteridera* HAROLD, 1876, Coleopterol. Hefte, vol. 15, p. 122.

A widely distributed species, frequently confused with *O. mexicanus* Harold. As Jacoby (1880-1892) has pointed out, some of the characters for the separation of the two species are of little value. This applies particularly to the mucronate thorax and the presence of punctures in the elytra of *O. icteriderus* Harold. In most of the specimens examined, I find that punctures, usually minute, are present. The most reliable character seems to be the color of the abdomen. In *O. mexicanus*, the entire abdomen is yellowish, while in *O. icteriderus* it is largely black, with perhaps only a little yellow along the sides or at the tip. Jacoby has also indicated that these two species may be identical. With more material available for study, this may prove to be correct, in which case *O. icteriderus* would be suppressed into synonymy.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Oaxaca*: Etla; Oaxaca; Durasnal. *Veracruz*: Jalapa.

Also Guatemala: Aceytuno.

NEW RECORDS FOR MEXICO: *Durango*: Palos Colorados, August 5, 1947, 8000 feet, two.

### ***Oedionychis modestus* Jacoby**

*Oedionychis modesta* JACOBY, 1886, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 410.

Jacoby considered this species closely allied with *O. lugens* LeConte and also with *O. concinna* Fabricius. At the present time their separation is largely on the basis a matter of color. They can be separated as follows:

Above green, thorax dark green, abdomen black (Mexico) . . . . . *modestus*  
 Above black, abdomen pale at tip (New Mexico and Arizona) . . . . . *lugens*  
 Above dark green or blue, abdomen yellow at apex (eastern United States to Texas) . . . . . *concinna*

Since the three species together cover a large extent of terri-

tory, they may be simply geographical subspecies of the same species. Until more material is available so that more exact lines of demarcation can be established, it is better to consider them as distinct species.

TYPE LOCALITY: Not given; here designated as Hacienda de Bleados, San Luis Potosí, Mexico.

RECORDED MEXICAN DISTRIBUTION: *Chihuahua*: Pinos Altos. *Veracruz*: Jalapa. *Puebla*: Puebla. *Guanajuato*: Silao. La Parada (not located). Tepansacualco (not located).

NEW RECORDS FOR MEXICO: *Chihuahua*: Madera, July 6, 1947, 7200 feet, three.

### ***Oedionychis violascens* Horn**

*Oedionychis violascens* HORN, 1889, Trans. Amer. Ent. Soc., vol. 16, p. 183.

Previously recorded only from southern California, *O. violascens* Horn was apparently unknown to Jacoby (1880–1892), although he mentions it, from the description, as being closely allied to his *O. modestus* Jacoby. The distinctly punctured elytra at once separate *O. violascens* from *O. modestus*, as well as another closely allied species, *O. lugens* LeConte, described from New Mexico. The one specimen taken by the expedition establishes the range of this pretty beetle much farther to the south than generally supposed.

TYPE LOCALITY: Fort Tejon, California.

RECORDED MEXICAN DISTRIBUTION: Not previously recorded.

NEW RECORDS FOR MEXICO: *Durango*: Las Puentes, July 24, 1947, 7000 feet, one.

### ***Oedionychis cazieri*, new species**

Ovate, somewhat depressed, flavotestaceous, shining; head antennae, legs, and under side, except prosternum which is testaceous, reddish yellow; head and pronotum nearly impunctate, a few very fine punctures visible under high power. Elytra finely, irregularly, but distinctly punctured.

MALE: Head broad, slightly broader than long, eyes prominent, widely separated; antennae separated by a broad, flat, slightly raised, transverse area; frontal tubercles transverse, flattened, separated by a deep median suture, limited above by a deeply impressed straight line turning up at each end before reaching the eyes, fading out before reaching the pronotum; antennae 11-

jointed, second nearly globose, third one-half longer than second, fourth to tip subequal, each slightly longer than third, terminal joints dark reddish brown to piceous, gradually more pubescent from fourth to end. Pronotum immaculate, impunctate, two and a half times as broad as long, sides rounded and broadly explanate, base arcuate, hind angles square, front angles thickened, produced, rounded, not dentate. Scutellum reddish brown to piceous, broader than long, rounded at tip. Elytra immaculate, appearing reticulated with transmitted light, irregularly but distinctly punctured, with round fine punctures not much wider than pronotum at base, broadest behind middle, thence rounding regularly to apex which is feebly rounded, margin narrowly explanate; broader at basal half, disappearing towards apex, umbone visible, not prominent. Abdomen and legs finely but sparsely punctured, each puncture bearing a fine short gray hair. Length, 5.5–6 mm.; width, 3.0–3.5 mm.

FEMALE: Similar to male.

TYPE MATERIAL: Holotype, male, collected 16 miles southeast of Chihuahua, Chihuahua, Mexico, July 11, 1947; allotype, female, collected at the same place as holotype; paratype, male, collected at the same place. All type material deposited in the collection of the American Museum of Natural History.

This species might be confused with *Oedionychis flavida* Horn, which occurs in Texas and Mexico, but can be readily separated by its larger size, more ovate shape, darker head and antennae, the deep transverse and median groove between the frontal tubercles, and the finely but distinctly punctured elytra. From the immaculate species in Mexico and farther to the south, it is separated by the above characters and its generally smaller size and more shiny appearance.

This species is named in honor of Dr. Mont A. Cazier, Curator and Chairman of the Department of Insects and Spiders of the American Museum of Natural History and leader of the David Rockefeller Mexican Expedition.

### ***Oedionychis durangoensis* Jacoby**

*Oedionychis durangoensis* JACOB, 1892, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, suppl., p. 318.

Jacoby's (1892) description was based on "many specimens" from the type locality in the state of Durango, Mexico. Only one specimen was taken on the expedition, also in Durango. From what

little we know of this insect in Mexico, it seems to be rather localized in this very small area. Since, however, it has recently been taken in Arizona, it is likely that *O. durangoensis* Jacoby will be found throughout northern Mexico and southwestern United States wherever its food plant occurs. What this may be is not at present known.

TYPE LOCALITY: Ventanas, Durango, Mexico.

RECORDED MEXICAN DISTRIBUTION: The type locality.

Also Arizona.

NEW RECORD FOR MEXICO: *Chihuahua*, Santa Clara Canyon, 5 miles west of Parrita, June 27, 1947, 5600 feet, one.

#### SUBFAMILY HISPINAE

Small or medium-sized, brightly colored, generally wedge-shaped beetles, sometimes having the elytra broad and truncate at the tip, frequently with rows of deep punctures and decorated with elevated lines or costae. Some are normal in shape, smooth or nearly smooth, usually brightly colored with contrasting blues, yellows, and red. The front of the head is prominent, seldom covered by the thorax, but the mouth is on the under side as in the next subfamily, the Cassidinae, antennae short, straight, usually compact, especially at the tip, and close together at the base; thorax truncate or emarginate in front; elytra as above.

Many of the larvae are leaf-miners, feeding between the upper and lower surfaces of the leaves. These have the head narrower than the rest of the body, with the first three segments much wider than those behind. Others feed exposed on the surface of the leaves, but disguise themselves by covering the body with excrement.

About 100 genera, with over 1500 species, are recorded from various parts of the world, with the greatest number from the tropics. Nearly 300 species are Mexico's share, with most of these from the luxuriant southern part. North America north of Mexico has about 45 species. Only five species were taken by the expedition, of which one is a new species.

This subfamily and the next, the Cassidinae, make up the Cryptostomes in some classifications.

#### *Chalepus ater* Weise

*Chalepus ater* WEISE, 1905, Deutsche Ent. Zeitschr., p. 134.

Five specimens were taken on the expedition which I am refer-

ring to this species. They all have a closer affinity with *ater*, the northern form which is found in Arizona and the extreme north-western part of Mexico, than to Crotch's species *omogerus* which seems to be more southern in distribution. These two species are so close that it is difficult to establish their exact status. In the material at hand, for the present, I can see no alternative but to recognize them as two species. If a large number of specimens of *ater* and *omogerus* from a number of localities were available, it is quite possible that they would all prove to belong to one species. In that case Crotch's name *omogerus* would have priority. This confusion enters into the material which Baly (1885-1894) placed under *Chalepus omogerus*, for in five specimens of "Biologia" material examined, two from northern Sonora, Mexico, fit Weise's description of *ater*. The other three, from Cuernavaca, Morelos, Mexico, are typical *omogerus* of Crotch.

TYPE LOCALITY: Arizona.

NEW RECORDS FOR MEXICO: *Chihuahua*: Primavera, June 30, 1947, 5500-6000 feet, one; Cañon Prieto near Primavera, July 2, 1947, 6500-6800 feet, three; Santa Clara, Namiquipa District, July 3, 1947, 6500 feet, one.

### ***Chalepus signaticollis latecinctus* Pic**

*Chalepus signaticollis latecinctus* PIC, 1932, Mélanges exotico-entomologiques, moulins, fasc. 60, p. 29.

Two specimens of this color form were taken by the expedition. They differ from typical *signaticollis* Baly in the much broader metallic green sutural area, extending to or slightly beyond the fourth stria interval, or the second costa, at the middle of the elytra, but narrowing towards the base. Baly (1885-1894) described *signaticollis* based on what I conclude to be a single specimen (for he made no mention of any others) from Puebla in the central part of Mexico. Pic gives no locality for *latecinctus* other than "Mexique," nor the number of specimens on which he bases his description. Only with more material available for study from many localities can a better idea of the relationship of these forms be gained. For the present I am therefore leaving *latecinctus* as a subspecies of *signaticollis*.

TYPE LOCALITY; "Mexique" (Pic).

RECORDED MEXICAN DISTRIBUTION: No authentic Mexican records.



NEW RECORDS FOR MEXICO: *Durango*: Coyotes, Durango District, August 8, 1947, 8300 feet, one; 6 miles northeast of El Salto, Durango District, August 10, 1947, 8500 feet, one.

### ***Stenopodius flavidus* Horn**

*Stenopodius flavidus* HORN, 1883, Trans. Amer. Ent. Soc., vol. 10, p. 301, pl. 9, fig. 8.

Two specimens of this interesting hispid were taken by the expedition, from the southern part of the state of Coahuila, Mexico. Previously recorded only from the extreme southern part of California (with a questionable record from San Francisco Island in the Gulf of California near the southern part of Baja California), these new records extend the range for this species far to the southeast. Indeed, it extends the range of the whole genus, which has heretofore not been recorded from south of the United States border according to Blaisdell.

I am referring these specimens to *S. flavidus* Horn, rather than to *S. martini* Blaisdell (1938). They possess many of the characters of the latter, such as the more prominent apical lobe, the fact that the sides of the pronotum are straight and convergent to apex instead of being slightly arcuate and subparallel at base and that the more strongly impressed crescentiform areas extend rugosely back for a short distance into the disc, and the greater proximity to the type locality. But they are equally close to *S. flavidus* Horn, for the antennae are moderately short and stout, with the first segment subglobular, the second as long as wide, and both are slightly larger than those that follow; the abdomen is black, instead of rufopiceous, with only the fifth segment paler on the tip and sides, and the fourth paler on the sides.

More intensive collecting throughout northern Mexico and the extreme southern part of Texas, New Mexico, and Arizona will undoubtedly yield more material for comparison. When this is done, I feel certain that these two species will prove to be the same, or at most that *S. martini* will be a subspecies of *S. flavidus*. Furthermore, *S. texanus* Schaeffer (1933) known only from Brownsville, Texas, and very close to and originally described as a variety of *S. flavidus*, then raised to specific rank by Blaisdell (1938), may, when intermediate forms are discovered, prove also to be the same as *S. flavidus*, or at most a subspecies.

TYPE LOCALITY: California.

RECORDED MEXICAN DISTRIBUTION: Not previously recorded.

NEW RECORDS FOR MEXICO: *Coahuila*: Twenty-five miles south-east of San Pedro de Colonias, August 21, 1947, 3700 feet, one; Guadalupe, August 23, 1947, one.

***Pentispa rockefelleri*, new species**

Elongate, sides nearly parallel, shining, reddish yellow, except head, antennae, a median longitudinal stripe and narrow lateral margins of thorax, scutellum, extreme tip of elytra, and under side and legs which are black.

FEMALE: Head small, entirely black, front slightly produced, eyes large, finely granulate, space between eyes with three impressed lines, the median broad and shallow, the lateral ones deep, punctured above and behind eyes, antennae as long as head and thorax, third segment slightly longer than second, segments 1, 2, 4, and 7 equal, 5 and 6 each somewhat shorter, the rest joined to form a nearly compact terminal joint. Pronotum narrowly black along apical and lateral margins, with a broad black median stripe nearly one-half as wide as long, surface very coarsely and closely punctured, base transversely impressed in front of scutellum, sides very little narrowed to middle where they are distinctly but obtusely angulated, from there narrowing to apical angles which are distinct. Scutellum truncate behind, nearly square, smooth, black, elevated posteriorly. Elytra reddish yellow, more reddish on suture, tinged with blackish on apex, never more than one-sixth of distance from tip, distinctly and evenly punctate-striate, the punctures coarse, evenly and closely placed, one extra, distinct puncture close to suture behind scutellum, sutural, second, fourth and sixth intervals broader, distinctly costate for entire length, smooth, umbone elevated, limited to base of sixth interval by impressed area on each side at base, lateral margin serrate from base to apex, more markedly at apex, which is nearly entire, epipleura reddish yellow except at tip which is blackish. Under side and legs black shining, coarsely punctured on prosternum and mesosternum, finely and sparsely on metasternum, abdomen, and legs. Length, 5.5–6 mm.; width, 2 mm.

TYPE MATERIAL: Holotype, female, collected at Nombre de Dios, Durango, Mexico, August 13, 1947; allotype, female, collected at same place and time as holotype; no paratypes. All type material in the collections of the American Museum of Natural History.

This species resembles closely in structural characters *Pentispa melanura* Chapuis, but differs principally in having the black

of the elytra limited to a very small area at the tip of the elytra, sometimes reduced to just a black tinge along the apical margin, with never any black along the suture.

This species is named in honor of Dr. David Rockefeller.

### ***Microrhopala rubrolineata* (Mannerheim)**

*Hispa rubrolineata* MANNERHEIM, 1843, Bull. Soc. Nat. Moscou, vol. 16, pt. 2, p. 307.

This very attractive hispid seems to be restricted to a very limited region, including southern Arizona, California, Baja California, and northern Mexico. It is very similar to *M. xerene* Newman, but differs largely in its smaller size and the under side which is steel blue instead of black. *Microrhopala xerene* also has a much broader distribution, for it ranges over the entire eastern United States from southern Canada to the Gulf. Several color forms of *Microrhopala rubrolineata* have been described. The one specimen taken on the expedition is of the typical form, that is, with the sides of the thorax and the second elytral costa red.

TYPE LOCALITY: California.

RECORDED MEXICAN DISTRIBUTION: *Sonora*: Northern Sonora. Tejon (not located).

NEW RECORDS FOR MEXICO: *Durango*: Pedricena, August 19, 1947, 4500 feet, one.

### **SUBFAMILY CASSIDINAE**

These are the Tortoise or Turtle Beetles, so called because of their broad oval or circular shape. The margins of the thorax and elytra are expanded and flattened, beneath which the head and legs are retracted, so as to be concealed or almost concealed when the animals rest on a leaf in the sunshine. In some genera, such as *Chelymorpha*, *Physonota*, and others closely related, the thoracic and elytra margins are not expanded so greatly as in most Cassidinae. In other genera, particularly in some of the tropical species, the thorax is armed with prolongations of various shapes; and in still others the elytra may have long spines arising from the top.

Many species are brightly colored in contrasting hues of black, red, and yellow. Some are brilliantly iridescent, shining in life like a spot of brass or liquid gold. These are the Gold Beetles. The iridescence usually quickly fades after death, but may return

if the beetle is placed in a humid atmosphere. It is caused by light reflected in various wave lengths from the film of body moisture under the somewhat transparent elytra. When once familiar with the group as a whole, one is usually able to detect a member of the Cassidinae on superficial inspection.

The larvae are oval, flattened, spiny grubs, feeding on the surface of the leaves, frequently in company with the adults. They have a peculiar habit of fastening the cast-off skins and excrement to a forked process which arches over the back from the tip of the abdomen, an almost tent-like arrangement which disguises and protects them.

The Cassidinae are an exceedingly large subfamily, numbering over 3000 species, in some 140 genera. They are world-wide in distribution, but especially rich in species in the tropics, where they reach their largest size, most brilliant colors, and oddest shapes. Tropical South America can be said to be the headquarters of this subfamily. The overflow extends into Mexico, where nearly 300 species have been recorded, but a great many of these do not reach northern Mexico. About 35 species have been listed from North America north of Mexico. Ten species were taken by the expedition.

### ***Physonota disjuncta* (Chevrolat)**

*Cassida disjuncta* CHEVROLAT, 1834, Coléoptères du Mexique, vol. 1, fasc. 3, p. 82.

This distinctively marked species can be easily recognized by the three black longitudinal lines on the thorax and on the elytra—one line conjointly at the suture, and one on the disc of each elytron. *Physonota disjuncta* ranges over a large part of central Mexico, but, as far as known, it has not been taken in the extreme northern part. It also apparently does not occur in Guatemala or along the extreme southern border of Mexico.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Durango City, 8100 feet; Milpas, 5900 feet (Forrer). *Guerrero*: Omilteme, 8000 feet. *Morelos*: Cuernavaca (H. H. Smith). *Veracruz*: Jalapa. *Guanajuato*: Guanajuato. *Oaxaco*: Juquila; Boca del Monte; Monte Verde (not located).

NEW RECORDS FOR MEXICO: *Durango*: Palos Colorados, August 5, 1947, 8000 feet, three; Coyotes, Durango District, August 8,

1947, 8300 feet, one; Otinapa, August 11, 1947, one. *Morelos*: Cuernavaca, July-August, 1903 (W. L. Tower), seven.

### ***Physonota picticollis* Boheman**

*Physonota picticollis* BOHEMAN, 1854, Monographia cassididarum, vol. 2, p. 193.

Nine specimens and one immature form of this beetle were taken on the expedition. It is an attractive species, although not strikingly marked, being straw-colored and shining, with three faint, tiny, round black spots arranged in a triangle, two in front and one behind. Although reported from Guatemala as well as Mexico, it does not seem to be common anywhere and is poorly represented in collections. These specimens are the first in the American Museum of Natural History collection.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Ventanas, 2000 feet. *Oaxaca*: Juquila; Oaxaca. Cerro de Plumas (not located).

Also Guatemala: Coban; Capetillo; Duenas.

NEW RECORDS FOR MEXICO: *Durango*: Nombre de Dios, August 13, 1947, 5900 feet, nine.

### ***Physonota ovalis* Boheman**

*Physonota ovalis* BOHEMAN, 1854, Monographia cassididarum, vol. 2, p. 195.

The 22 specimens add a species new to the collections of the American Museum of Natural History. *Physonota ovalis* is rarely found in collections although it has been recorded from widely scattered localities from central and northern Mexico. Apparently the Museum series had just reached the adult stage, for in over one-fourth of the specimens the elytra were in a soft condition when collected, causing them to shrivel badly, and for this reason the coloring is not characteristic. *Physonota ovalis* resembles *P. picticollis* in shape, size, and general straw color. It differs, however, in having only a very short, fine, impressed black line at the center of the thorax.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Chihuahua*: Chihuahua City. *Nuevo Leon*: Monterrey. *Veracruz*: Jalapa. Totosinapan (not located).

NEW RECORDS FOR MEXICO: *Chihuahua*: Kilometer 36, Santa Barbara-Ojito, August 17, 1947 (G. M. Bradt), 22.

### ***Jonthonota mexicana* (Champion)**

*Cassida mexicana* CHAMPION, 1894, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 2, p. 176, pl. 9, fig. 14.

A beautiful species closely allied to the North American *Jonthonota nigripes* Olivier, but smaller and narrower, with coarser punctures and more distinctly marked with elongate black marks instead of rounded dots. Although named *mexicana* it is as much at home across the border in Arizona, where a few specimens have been taken, as it is in Mexico, where it seems to be restricted to the northern half. It is rare in collections. Champion based his description on two specimens from Ventanas, Durango, Mexico. Since then there are few reliable records from Mexico. Nothing is known of the food plant. Perhaps with more extensive collecting this might be discovered and the species found more widely distributed than generally believed. The expedition secured two specimens from two widely separated localities.

TYPE LOCALITY: Ventanas, Durango, Mexico.

RECORDED MEXICAN DISTRIBUTION: *Durango*: Ventanas. *Distrito Federal*: Mexico City.

NEW RECORDS FOR MEXICO: *Chihuahua*: San José Babícora, July 5, 1947, 7100 feet, one. *Durango*: Palos Colorados, August 5, 1947, 8000 feet, one.

### ***Deloyala guttata fuliginosa* (Olivier)**

*Cassida fuliginosa* OLIVIER, 1808, Entomologie, vol. 6, p. 971, no. 97, pl. 1, fig. 8.

This common species and its many subspecies, varieties, and aberrations are widely distributed from the New England states west to Montana and south to Florida, Arizona, and through Mexico and the Central American countries to Panama, Colombia, and Brazil; it also occurs in the West Indies. One specimen, the black form of *guttata*, was taken on the expedition. This color form, having the entire central disc black, with a well-marked extension of the black across the margin to the humeri and a narrow line along the suture to the apex, is considered by some to be a color aberration, by others a subspecies or a variety. I am here considering it as a color variety under the name *fuliginosa* Olivier, which has priority over *immunita* Boheman (1855) and the more frequently used *trabeata* Boheman (1855), which, together with *pennsylvanica* Spaeth (1914), are relegated to synonymy. Champion (1885-1894)

recognized this discrepancy in names and also used Olivier's name *fuliginosa* for the black variety which he designated as variety 2.

TYPE LOCALITY: Antilles: Guadeloupe (undoubtedly the Island of Guadeloupe, Lesser Antilles).

RECORDED MEXICAN DISTRIBUTION: Widely distributed, but the records are not accurate because of the great confusion that exists with regard to the various forms.

NEW RECORD FOR MEXICO: *Chihuahua*: Catarinas, July 26, 1947, 5800 feet, one.

### ***Nuzonia pallidula* (Boheman)**

Figure 17

*Cassida pallidula* BOHEMAN, 1854, Monographia cassidarum, vol. 2, p. 457.

This is a widespread North American species ranging over most of the southern half of the United States, and even into some of

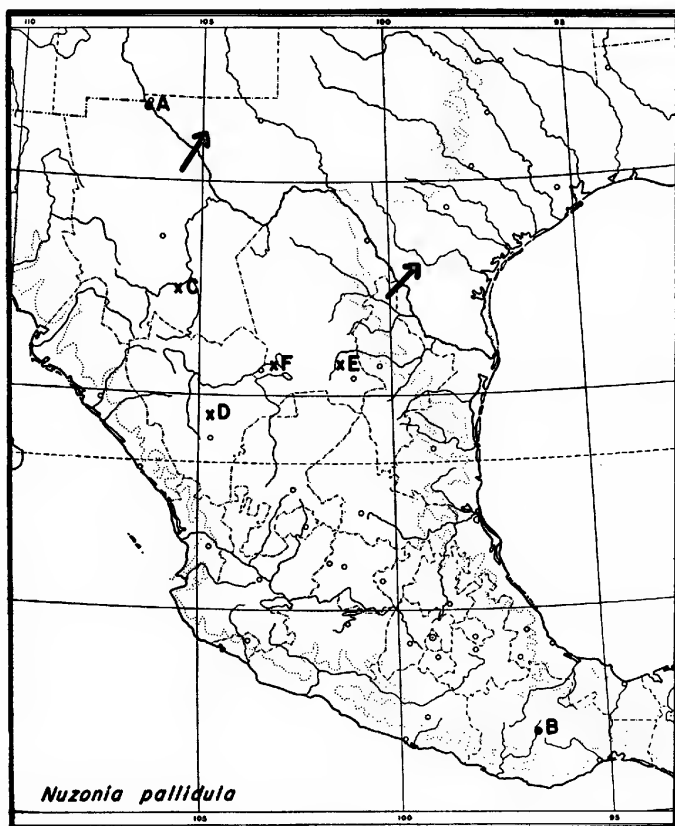


FIG. 17. Distribution of *Nuzonia pallidula* (Boheman).

the more northern states, and extending south into Mexico. Although a very distinctive species, it appears to be rather localized throughout its range. In most collections it appears under the genus *Gratiana* Weise, but Spaeth's name *Nuzonia* apparently has priority for this genus. The larvae and adults are found feeding on various species of Solanaceae. Twenty-three specimens from four localities were taken on the expedition. Most of the Mexican records are from the northern part, but the one record from Oaxaca, far to the south, would seem to indicate that the species might be found also in the central part of Mexico, where indeed Solanaceae plants are fairly common.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Sonora*: Northern part. *Chihuahua*: Juarez (A). *Oaxaca*: Oaxaca (B).

Also southern California; Arizona; Texas; Indiana; Georgia; Washington, D. C.; Florida; South Carolina; Kansas.

NEW RECORDS FOR MEXICO: *Chihuahua*: Forty-two miles southwest of Camargo (C), July 15, 1947, 4900 feet, one. *Durango*: San Juan del Rio (D), July 30, 1947, 5200 feet, one. *Coahuila*: Guadeloupe (E), August 23, 1947, four; 25 miles southeast of San Pedro de Colonias (F), August 21, 1947, 3700 feet, 17.

### ***Plagiometriona clavata* (Fabricius)**

*Cassida clavata* FABRICIUS, 1798, Supplementum entomologia systematica, p. 83.

Only two specimens of this widely distributed species, which ranges from New York and the Great Lakes states south into Mexico, were taken on the expedition. They are of the usual lighter color that seems to be the prevalent form from Arizona southward. Specimens from the northern part of the range have the central part dark brown or almost black. *Metriona testudinaria* Boheman, which resembles this species very closely, replaces *clavata* in southern Mexico, the Central American countries, Colombia, and Venezuela.

TYPE LOCALITY: "America borealis."

RECORDED MEXICAN DISTRIBUTION: *Guanajuato*: Guanajuato. *Puebla*: Matamoros Izucar. *Morelos*: Cuernavaca. *Guerro*: Chilpancingo; Amula; Acapulco.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Barbara, Santa Barbara District, July 17, 1917, 6300 feet, two.



***Metriona emarginata* (Boheman)**

*Coptocycla emarginata* BOHEMAN, 1855, Monographia cassididarum, vol. 3, p. 298.

A widely distributed and common species throughout Mexico, extending northward across the United States frontier into Arizona, and southward into Central America. It is easily recognized by its bright red or yellowish red color and the distinctive clear area margined with black on the margin of the elytra, slightly in front of the middle. Nothing has been recorded of its food plants.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Chihuahua*: Pinos Altos; Chihuahua City. *Coahuila*: Saltillo. *Durango*: Durango City. *Colima*: Colima City. *Puebla*: Matamoros Izucar; Atlixco. *Morelos*: Cuernavaca. *Guanajuato*: Guanajuato. *Guerrero*: Amula; Chilpancingo. *Oaxaca*: Oaxaca. *Veracruz*: Misantla; Orizaba; Cordoba; Fortin. *Chiapas*: Tapachula.

Also Guatemala: Zapote; Capetillo; San Geronimo. Costa Rica: Coche. Also Arizona: Huachuca Mountains.

NEW RECORDS FOR MEXICO: *Chihuahua*: Catarinas, July 26, 1947, 5800 feet, one. *Durango*: Nombre de Dios, August 13, 1947, 5900 feet, two. *Veracruz*: Jalapa, May 19, 1946 (J. and D. Pallister), five.

Also Guatemala: Moca, June 25, 1947 (C. and P. Vaurie), two; Moca, August 31, 1947 (C. and P. Vaurie), one.

***Metriona bifossulata* (Boheman)**

*Coptocycla bifossulata* BOHEMAN, 1855, Monographia cassididarum, vol. 3, p. 135.

A common species throughout southern Mexico and Guatemala, much less so in the northern part of Mexico. Five specimens from two localities were taken on the expedition. As far as known this species has not been taken north of the Mexican border or south of Guatemala. It is recorded by Duges as feeding on *Ipomoea murucoides*.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: *Sinaloa*: Mazatlan. *Durango*: Ventanas. *Guanajuato*: Irapuato; Guanajuata. *Morelos*: Cuernavaca; Puente de Ixtla. *Guerrero*: Iguala; Chilpancingo. *Puebla*: Matamoros Izucar. *Oaxaca*: Etla; Oaxaca. *Veracruz*: Jalapa; Cordova; Veracruz. *Chiapas*: Tapachula. *Yucatan*: Southwest.

Also Guatemala: Las Mercedes; Cerro Zunil; Duenas; Capetillo; San Geronimo.

NEW RECORDS FOR MEXICO: *Zacatecas*: Fresnillo, August 15, 1947, 7000 feet, four. *Durango*: Villa Madero, August 18, 1947, 6700 feet, one.

### ***Metriona bicolor* (Fabricius)**

*Cassida bicolor* FABRICIUS, 1798, Supplementum entomologia systematica, p. 83.

One specimen of this common and widely distributed beetle was taken on the expedition. The species ranges from the New England states west to the Dakotas, south to Florida, Texas, Arizona, into Baja California, and through Mexico and Guatemala to Nicaragua; it occurs also in a number of the islands of the Lesser Antilles. Because of its wide range, in the United States there are a number of named forms, now considered synonymous because they do not have enough subspecific qualifications to warrant the retention of the names. In Mexico, however, the status of this species is still in greater confusion, with a number of described species. These forms are confused with the various forms of *Metriona trisignata*. The latter is a very abundant and widely distributed species ranging from northern Mexico south through Panama to Brazil and the Guianas. It differs from *bicolor* in its generally larger size, but there are many small or intermediate forms that overlap and are, therefore, difficult to assign to either species. Champion (1885-1894, p. 212) experienced the same difficulty, and when writing of *bicolor* said, "Some of its varieties are indistinguishable from that (*trisignata*) species." Only with more material available for comparative study, but particularly with a more complete biological study of these several species, can any accurate idea be gained of their exact relationship. Although the biology of *bicolor* in the United States has been studied to some extent, even with this common species more work should be carried on, correlating all the innumerable forms from its wide-flung distributional outposts. *M. bicolor* is commonly called the Gold Bug, because in life it presents a beautiful iridescence which shines like a little spot of polished brass or gold on a leaf. Among its food plants are wild morning-glory, bittersweet, and sweet-potato vines, and there are probably others that have not yet been recorded.

TYPE LOCALITY: North America.

RECORDED MEXICAN DISTRIBUTION: *Chihuahua*: Pinos Altos. *Durango*: Villa Lerdo. *Veracruz*: Jalapa; Misantla; San Andres Tuxtla. *Oaxaca*: Juquila; Oaxaca. *Guerrero*: Chilpancingo; Tepetlapa. *Guanajuato*: Guanajuato. *Morelos*: Cuernavaca. *Yucatan*.

Also Guatemala: Capetillo; Duenas. Nicaragua: Chortales.

NEW RECORDS FOR MEXICO: *Chihuahua*: Santa Barbara, Santa Barbara District, July 18, 1947, 7500 feet, one.

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